VOL. 124 September, 1959 NO. 9

MILITARY MEDICINE

ORIGINAL ARTICLES

Authors alone are responsible for opinions expressed in their contributions

Panel on Rehabilitation*

Moderator:

COLONEL CHARLES D. SHIELDS, *Medical Corps, U. S. Army Reserve*

Professor and Chairman, Department of Physical Medicine and Rehabilitation, Georgetown University Medical Center, Washington, D.C.

INTRODUCTION BY MODERATOR

REHABILITATION is a most important and complex aspect of medical practice. The diversity of interests of the membership of our panel is evidence of the broad scope of rehabilitation medicine.

We are concerned today with the special field of Physical Medicine and Rehabilitation and with rehabilitation as the responsibility of every physician. Rehabilitation implies that therapy and training are available and utilized to return every patient to work or to school or to the highest level of self-care that is possible of attainment. The military services, particularly the Army, have had much to do with the development of rehabilitation. Volume 13, Medical Department of the United States Army in the World War, published by the United States Government in 1927 contains much valuable information in this respect. During World War II there was a renewed interest in dynamic rehabilitation with which the name of Dr. Howard Rusk is closely associated and this has persisted to the present time. The military services must all provide special rehabilitation activities for their patients, but long-term care for militarized personnel and veterans is a responsibility of the Veterans Administration. Executive Order Number 10400, dated September 27th, 1952, vests in the Administrator of Veterans' Affairs all duties, powers and functions incident to the hospitalization of members or former members of the uniformed services who require hospitalization for chronic diseases. The Order states in part: "that chronic diseases shall be construed to include chronic arthritis, malignancy, psychiatric or neuropsychiatric disorder, neurological disabilities, poliomyelitis with disability residuals and degenerative disease of the nervous system, severe injuries to the nervous system including quadriplegics, hemiplegics, and paraplegics, tuberculosis, blindness and deafness requiring definitive rehabilitation, major amputees, and such other diseases as may be so defined jointly by the Secretary of Defense, the Administrator of Veterans' Affairs, and the Federal Security Administrator and so described in appropriate regulations of the respective departments and agencies concerned." We realize that our Armed Forces Medical Services must always be prepared for national emergency. We must utilize techniques and services of rehabilitation as we know them to the best of our ability. We must interest ourselves in basic research and apply the findings to our clinical practice. We must be familiar with the historical

*Presented at the 65th Annual Convention of the Association of Military Surgeons of the United States held at Washington, D.C., November 17-19, 1958.

aspects of rehabilitation medicine. We must also look into the future, unencumbered by this knowledge, ready and willing to change our concepts and our practice and adapt ourselves to the needs of any emergency that presents itself. This is the ultimate test of the value of our ability and our training. The panel will discuss rehabilitation medicine as a specialty in medicine and as a concept of practice that must be developed and accepted by all physicians. Rehabilitation as a specialty in medicine is concerned with the diagnosis and treatment of neuromuscular disease and certain musculo-skeletal defects. Rehabilitation as a concept of practice implies that every physician uses his skills to bring his patient beyond the confines of medical recovery and that he assumes broad social obligations for the efficiency of his patient in a competitive society. Every physician who offers services to patients has some method that will improve functional capacity. On occasion, for example, a surgical procedure marks the difference between dependence on others and independence. Another patient may require that physicians and co-professional group combine their efforts over long periods of time to obtain a similar result. A discussion on rehabilitation would not be complete without some emphasis on physical standards and pensions. It has always been the practice in our great nation to render complete medical services to those men who have been disabled while rendering military service to their country and to those who are injured in their daily employment. Those patients who are not returned to the state of their previous health are considered for pensions of various types. Financial rewards for disability have a definite place but we must admit that sometimes they delay full, complete and effective recovery.

Our Panel will now present certain aspects of rehabilitation medicine. The members of the panel are as follows:

Rehabilitation and Cancer
Murray Copeland, M.D., Professor and Chairman, Department of Oncology, Georgetown University Medical Center, Washington, D.C.

Physical Medicine and Rehabilitation in the Army Medical Service
Colonel A. F. Mastellone, MC, USA. Chief, Physical Medicine Service, Walter Reed Army Medical Center, Washington, D.C.

Physical Standards—Evaluation of Fitness For Duty—Pension
Colonel Clark Meador, MC, USA, Chief, Department of Physical Standards Research, Army Institute of Research, Walter Reed Army Medical Center Washington, D.C.

Dynamic Physical Medicine and Rehabilitation in the Veterans Admistration
Louis B. Newman, M.D., President, American Academy of Physical Medicine and Rehabilitation and Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Research Hospital, Chicago, Illinois.

Plastic Prostheses in Rehabilitation
Captain Victor J. Niiranen, DC, USN, Head, Training Aids Department, Naval Dental School, National Naval Medical Center, Bethesda, Maryland.

Psychiatric Rehabilitation
Oren K. Timm, M.D., Area Medical Director, Veterans Administration, St. Paul, Minnesota.

Rehabilitation of Amputees
Frederik Vultee, M.D., Associate Director, Department of Physical Medicine and Rehabilitation, Medical College of Virginia, Richmond, Virginia.

Thoracic Surgery and the Rehabilitation Program
Harry Walkup, M.D., Chief, Surgical Service, Veterans Administration Hospital, Oteen, North Carolina.

During World War II a need for coordination of the treatment of long-term patients was recognized in the Military Services. Following World War II Major General Norman Kirk, then Surgeon General, established a Department of Physical Medicine and appointed a specialist in this field as a consultant in his office. The Army at the present time has Physical Medicine services in its larger hospitals, operates residency training programs in this specialty and operates schools for co-professional groups that are active in the field of rehabilitation. We shall ask Colonel Mastellone to discuss some of their responsibilities, methods and particularly their plans for rehabilitation services in the event of national emergency.

PHYSICAL MEDICINE IN THE ARMY: HISTORY AND DEVELOPMENT

By
LIEUTENANT COLONEL A. F. MASTELLONE, *Medical Corps, U. S. Army*
Chief, Physical Medicine Service, Walter Reed Army Hospital, Washington, D.C.

THE almost miraculous demonstration by the military services during World War II that sick and wounded soldiers could be brought back to maximum activity with speed and efficiency created nationwide interest and intense enthusiasm for rehabilitation. Prior to the war, the management of convalescent and disabled patients had been marked by hesitancy and indecision. With the end of the war came the realization that there were in our country thousands upon thousands of disabled and handicapped civilians who had been seemingly cast aside as useless and who were merely existing. This challenge was recognized, not only as a community responsibility, but as a medical responsibility by a number of dynamic physicians whose efforts brought into focus the "third phase of medicine" in medical practice and spurred the growth and development of Physical Medicine and Rehabilitation as a separate medical specialty.

HISTORY OF PHYSICAL MEDICINE IN THE ARMY

World War I. Shortly after the United States entered World War I, the medical department of the army was confronted with the task of organizing a Physical Rehabilitation Division. A committee was formed to study and report on the rehabilitation program then being so effectively carried on in hospitals supporting the British Army. These observers reported enthusiastically on the British program but believed that it was too broad a specialty to be confined to orthopedics and recommended that the program be coordinated with all branches of medicine and surgery.

On 22 August 1917, the Division of Special Hospitals and Physical Reconstruction was established in the Office of the Surgeon General.[1] Its function was to supplement other divisions concerned with the treatment of the sick and wounded at home and overseas, and to formulate policies on a broad rehabilitation program. It was estimated that fifty percent of patients would require some form of physical therapy. In January 1918, the Surgeon General recognized the need for occupational therapy, and it was introduced as an integral part of the reconstruction program for hospitalized soldiers. The reconstruction personnel employed for this work were classified as occupational aides and, unlike the physiotherapy aides, were not under medical direction.

In May, 1918, the function of this new division was more clearly defined and its designation was changed to "Division of Physical Reconstruction." Physical reconstruction was defined in a letter of instruction as "the completest form of medical and surgical treatment carried to the point where maximum functional restoration, mental and physical, may be secured. To secure this result, the use of work, mental and manual, will be required during the convalescent period. This therapeutic measure, in addition to aiding in greatly shortening the convalescent period, retains or arouses mental activities preventing hospitalization, and enables the patient to be returned to service or civil life with the full realization that he can work in his handicapped state, and with habits of industry much encouraged if not firmly formed." The policy that no member of the military service was to be discharged from a hospital until he "attained complete recovery or as complete recovery as it is to be expected he will attain when the nature of his disability is considered."

Treatment included occupational therapy, physical therapy, education, recreation and social service. Physical therapy departments were established in 48 hospitals, and a total of 748 physiotherapy aides were appointed during World War I, of whom about 80 served overseas.

Following the signing of the Armistice,

with the subsequent demobilization and the shortage of trained personnel, interest waned and the question of the place of the army in long-range rehabilitation efforts was raised. On 9 August 1921 the U. S. Veterans Bureau was established and assumed responsibility for long-range medical care and vocational training. Physical and occupational therapy were then utilized in a very limited way, and only nominally supervised by a medical officer, until the Economy Act of 1933 when these services were further curtailed. By 1938, there were 37 physical therapists in the Army. In December 1941, there were 9 occupational therapy personnel on duty in 5 permanent hospitals and of this number only 3 were qualified therapists. As predicted by Brigadier General William S. Thayer, Medical Consultant to the American Expeditionary Forces in 1919, military interest in convalescence did "disappear within a year of the signed peace, only to be reapplied rather late after the declaration of the next war."[2]

World War II. Early in 1941, the lack of sufficient physical therapists to meet the increasing requirement of the expanding Army became a matter of concern to the Medical Department. On 26 March 1941, the division of Medical Services of the National Research Council formed a subcommittee on physical therapy which met with representatives of the Office of the Surgeon General. Specific needs of the Army were discussed including the shortage of physicians trained in physical medicine available to the Army to head physical therapy departments in general and station hospitals.

With the advent of hostilities in December 1941, and the mobilization of medicine in general, prompt action became necessary. Physicians who had been engaged in physical medicine were commissioned and assigned to the larger army hospitals. Arrangements were made for the training of officers in civilian institutions such as the Mayo Clinic and Northwestern University Medical School. In addition, other interested physicians were given on-the-job training. Eighty-nine medical officers were given a three-month course of training at the Mayo Clinic between 1942 and 1945.

In 1941, there were only seventy-five physical therapists on duty in the Army. Recruitment of the therapists from civilian life was grossly inadequate, particularly in the face of an estimate that the services of 1,500 physical therapists would be needed. It became necessary to set up training schools in general hospitals where a total of 1,039 therapists were trained. In addition 278 therapists received didactic training in civilian hospitals and completed their apprenticeship training in Army general hospitals. A total of 1,688 physical therapists were commissioned in the Medical Department by July 1946. They served in some 217 hospitals throughout the world.

Since it had not been considered in mobilization planning, occupational therapy as part of the convalescent reconditioning program got under way more slowly and with greater difficulty. In August 1943, basic policies were established limiting occupational therapy programs to general hospitals in the Zone of Interior and describing the types of injuries and illnesses which would benefit from this service, namely, orthopedic, neuropsychiatric, newly-blinded and tuberculosis. Recruitment of occupational therapists was slow and disappointing and in June 1944 a twelve month subsidized War Emergency Course in occupational therapy was approved by The Surgeon General. The course consisted of a four month didactic phase given in approved civilian schools, and was followed by eight months clinical practice at designated Army hospitals. A total of 667 were enrolled and 545 students completed the clinical training program.

In the spring of 1943 The Surgeon General, Major General Norman T. Kirk, had the opportunity, during the Tunisian campaign, to observe a physical rehabilitation battalion in the British Army in a tent camp on the dunes of North Africa.[3] This unit was made up of men who had recovered from severe illness or wounds, some still wearing casts, and who were being toughened and readied for return to duty under the guid-

ance of specially trained medical officers and physical training sergeants. He saw the need for an extensive physical reconditioning program so that convalescent patients could be more quickly returned to duty and for the rehabilitation of those who, because of physical or emotional disability, needed to be separated from the Service. In September 1943, physical reconditioning was inaugurated in all Army hospitals. A suggested outline of the program was published and the policy of designating four classes of patients in reconditioning was established:

Class 4—bed patients,
Class 3—ambulatory hospital patients,
Class 2—patients no longer in need of hospital care, housed in barracks and organized into companies,
Class 1—advanced group of patients nearest point of recovery and return to full duty.

The program was soon expanded to include occupational therapy and educational reconditioning. Convalescent sections were established in general hospitals. Gymnasiums and swimming pools were constructed and were used in reconditioning and in the treatment of specific disabilities. With the continued increase in the patient load 13 convalescent hospitals were established. To provide personnel for the expanding program, schools for the training of reconditioning instructors and educational reconditioning personnel were established early in 1944. A total of 3,616 officers and men were trained at these schools. In the European Theatre of operations 20 physical reconditioning centers were established, and they played a very important part in the return to duty of 375,000 of 598,000 patients treated in that Theatre.[3]

Rusk,[4] in evaluating the Convalescent Training Program in the Army Air Corps, observed that:

1. Hospitalization had been shortened.
2. Hospital readmissions had been reduced.
3. Sick leaves were practically eliminated.
4. The morale of the soldier-patients was immensely improved because they had been kept interested and busy in purposeful activity.

In discussing developments in medical rehabilitation at the end of the war, Krusen[5] stated; "I have been utterly amazed as I have watched a whole new field of medical endeavor unfolding before my eyes so that now reconditioning of the disabled has become an integral part of the medical program of practically all of the Army and Navy hospitals. Physical therapy, occupational therapy and educational and recreational programs are being beautifully coordinated in a manner which is completely revolutionizing the convalescent routines for the sick and disabled."

Post-World War II. During the war years, physical therapy had remained separate from the allied efforts of the reconditioning program. Educational reconditioning had burst its bounds at the hospital level due to the tremendous enthusiasm of the hospital educational reconditioning officers and the inability of the Surgeon General's office to supervise these efforts during the rush of the war years. It was obvious that some means had to be found to bring all efforts together into an integrated program. As a result, in April 1946 there was established in the Office of the Surgeon General a Physical Medicine Consultants Division. This division was comprised of these sections, Physical Therapy, Occupational Therapy, and Physical Reconditioning, and its mission was to provide over-all supervision of Medical Department activities in these fields. Educational reconditioning and other non-professional and non-medical services for hospitalized soldiers were placed under the Convalescent Services Branch of the Hospital Division.

With the closure of convalescent hospitals, the question of establishing Physical Medicine Services in general hospitals came under consideration. However, it soon became apparent that as of June 1946 there would be only 6 qualified medical officers with MOS 3180 on active duty. In order to staff the proposed services, "in-service training" courses for young medical officers were started at several general hospitals. The recognition of Physical Medicine as a separate specialty with the establishment of the American Board of Physical Medicine in 1947 attracted a nucleus of senior officers who received special training in civilian medical centers with the result that Physical Medi-

cine Service became firmly established and approved for residency training. Training courses for physical and occupational therapists and physical reconditioning officers and enlisted technicians at the Medical Field Service School furnished personnel to meet the peacetime needs in these fields.

Korean War. At the beginning of the Korean war Physical Medicine Services were well established in all Class II hospitals, and later eight services were activated in Class I specialized treatment centers which were staffed by qualified officers newly entering on active duty and young physicians with 12 weeks of training in civilian and military hospitals. The emphasis this time was primarily on the physical restoration of the wounded and disabled to the best possible physical condition consistent with their disability.

Present Status. On 27 September 1952, Executive Order #10400 vested in the Administrator of Veterans' Affairs all duties, powers and functions incident to the hospitalization of members and former members of the uniformed services who required hospitalization for chronic diseases. This directive obviously affected the magnitude of our rehabilitation efforts of the Army, but it did not alter the need for physical medicine services. In addition, the reduction in size of the army, the closure of a number of hospitals, the reduction in bed capacity of others, economy measures and strict limitations on personnel authorizations have all resulted in the curtailment in the number of physical medicine services. There are now only 5 of the larger Army hospitals in the United States and 2 overseas with physical medicine services.

Residency training programs in 3 Army hospitals are approved by the Council on Medical Education of the American Medical Association. Twenty-two medical officers have completed residency training in Army hospitals since the inception of the program in January 1948. Of this number 20 have been certified by the American Board of Physical Medicine and Rehabilitation. A total of 27 regular Army medical officers has been certified. Considerable difficulty is being encountered in interesting young physicians to accept this training in the Army, probably because of the more appealing inducements, financial and otherwise, available in civilian life.

Physical and occupational therapy sections are maintained in many hospitals with 250 or more beds where physical medicine as a service is not authorized. These operate as sections of the surgical service under the supervision of a designated medical officer. Little or no difficulty is encountered with respect to the value of and need for physical therapy in Class I hospitals. However, all medical officers are not fully cognizant of the therapeutic potential of occupational therapy. It is too frequently considered to be purely recreational or diversional in nature and therefore an unnecessary luxury particularly when floor space for the expansion of nonprofessional or administrative activities is needed. Occupational therapy is a professional treatment procedure prescribed by a physician with specific goals in mind. In patients with musculoskeletal or neuromuscular disabilities its primary specific objectives would be to: (a) improve muscle strength and joint function, (b) improve dexterity and skill and work tolerance, and (c) obtain maximal functional capacity and independence. In medical and surgical patients, particularly when hospitalization may be long, i.e., tuberculosis, myocardial infarction, occupational therapy can be instituted while the patient is confined to bed and the activity graded with respect to energy expenditure on the part of the patient. Here the objectives and effects of therapy would, while providing physical activity and assisting in maintenance of strength, be primarily supportive and psychological and aim to: (a) maintain or restore morale and confidence, (b) overcome depression and anxiety, (c) prevent boredom and introspection, (d) promote adjustment to hospitalization and acceptance of hospital regime.

In June 1955, Medical Service Corps officers were eliminated from physical reconditioning assignments and reclassified into

new career patterns. This change was made after due consideration and study and was based on the fact that in the post-war years a definite change in emphasis gradually occurred with respect to the use of physical reconditioning. Physical reconditioning continued to be administered by trained enlisted technicians but now under supervisory control of physical and occupational therapists.

Training of physical and occupational therapists to meet current personnel requirements continues. Training courses for physical reconditioning, physical therapy and occupational therapy enlisted technicians are maintained on a stand-by basis and activated as personnel needs require. The physical reconditioning officers' course is also maintained on a stand-by basis for activation in the event of mobilization.

In the event of mobilization, expansion of Physical Medicine activities should not create problems any different than would be encountered in the expansion of any of the other specialties. Physiatrists, physical and occupational therapists and physical reconditioning officers are in the ranks of the active reserve. Reserve hospital units include physical medicine services. T/O and E mobilization hospital units make provision for physical medicine and physical reconditioning activities. In-service and civilian facilities for the training of necessary personnel can be expanded and utilized according to need.

Conclusions

The remarkable achievements of the vast reconditioning program and the recognition of the usefulness and effectiveness of physical methods of treatment during World War II resulted, in 1946, in the reorganization of the various activities and the establishment of the Physical Medicine Consultants Division in the Office of the Surgeon General, and Physical Medicine Services in general hospitals. Thus, the purely medical aspects of the wartime program were retained and coordinated under medical officers trained in Physical Medicine.

The specialty gradually became more sharply defined and came to encompass the field of medical practice in which the skills, diagnostic methods and therapeutic procedures employed by the physiatrist played a major role. The scope of Physical Medicine is wide and in a general hospital it can serve practically all the other specialties of medicine and surgery in the treatment of any condition where physical methods are indicated for the restoration of function or in the prevention of its loss. In this respect, the role of the physiatrist and his contributions to the high standard and effectiveness of medical care in the Army Medical Service must not be underestimated. In the broader aspects of rehabilitation he is, by his interests, training and experience, best qualified to direct the physical rehabilitation of the handicapped patient and his ultimate restoration to maximal physical, social and vocational capacity.

References

[1]History of the Medical Department of the U. S. Army in the World War, Volume 13, Part I, 1927.

[2]Thorndike, Augustus: The Reconditioning of Patients in Army Service Force Hospitals, Convalescence and Rehabilitation, Committee on Public Health Relations, N.Y. Acad. Med., April 1944.

[3]Kirk, Norman T.: Address, American Congress of Physical Medicine, Arch. Phys. Med. 26:636-638, Oct. 1946.

[4]Rusk, Howard A.: Convalescent care and Rehabilitation in the Army Air Forces, Med. U. No. Amer., 715-729, May 1945.

[5]Krusen, Frank H.: The Expanding Field of Physical Medicine, Arch. Phys. Med. 26:201-207, April 1946.

Dr. Shields: After any period of hospitalization or illness, evaluation of fitness for duty and/or assignment is a problem for the personnel officers and in this respect there must be assistance and advice from the Medical Profession. This is particularly true in patients with long-term illness resulting in disability. We shall ask Colonel Meador to comment along these lines and perhaps to go beyond this and develop some of the problems that are associated with retirement and pensions. We hope at the end of Colonel Meador's remarks that others will offer their opinions.

PHYSICAL STANDARDS—EVALUATION OF FITNESS FOR DUTY—PENSION

By
COLONEL CLARK MEADOR, *Medical Corps, U. S. Army,*
Walter Reed Army Medical Center

WHEN the military patient has received the maximum benefit of hospitalization and convalescent care, an evaluation of his fitness for duty must be made by the military physician. This area of responsibility is not always as attractive to the military physician as is the care and treatment of the sick and injured but is extremely important in the conservation of available manpower resources.

Over 90% of the patients admitted to military hospitals are returned to a duty status. The 10% who fail to return to duty status are individuals who have been found medically unfit under the laws, rules, and regulations of the applicable military service. The Congress has provided through certain laws that when a member of the military services becomes unfit to perform the duties of his office, grade, or rating, he may be separated with or without severance pay, or retired for disability. In order to be eligible for severance pay or disability retirement from the military services, the disability must have been incurred while entitled to receive basic pay, be an incident of the military service (in line of duty), or be service aggravated.

Each of the military services has certain retention criteria which they utilize in determining whether or not an individual is fit or unfit for further service. In general, these standards are based on whether the individual can or should continue to serve in the military service. Retention standards are quite different from entry standards which are based on appraisal factors such as anticipated sick, hospitalization and death rates, whether aggravation or progression is likely, anticipated pension and compensation claims, the ability to complete military training, availability for duty in overseas areas as well as in the Continental United States, and last but not least, the available manpower resources. The fact that an individual acquires a disability in the service which is ratable by the Veterans Administration does not, in itself, entitle the individual to disability separation.

Among the 10% of admissions that the Army Medical Services failed to rehabilitate in a recent year, approximately 19% ended up in permanent retirement. Those who have chronic diseases or severe residuals which may prolong hospitalization or rehabilitation may be transferred to the Veterans Administration for further care. Approximately 11% of the individuals are separated with severance pay. Approximately 18% of the dispositions are placed on the temporary disability retired list. (These dispositions must be finalized within a five year period and may either end up in permanent retirement, severance pay, or return to duty status.)

By far the largest number of failures are for individuals who are unfit because of medical conditions which existed prior to entry in the service and which were not service aggravated. Approximately 52% of the failures fall in this category. These individuals are not entitled to disability compensation from the military services but may or may not be eligible for compensation or benefits from the Veterans Administration inasmuch as a separate determination of line of duty status is made by that organization under the rules, laws and regulations under which they operate.

Individuals who have medical conditions which, in accordance with retention criteria are in themselves not disabling, and whose unfitness is primarily caused by non-medical factors such as lack of motivation or a personality or character disorder, are eliminated through administrative rather than medical channels.

I now wish to make a few remarks concerning the 90% of military admissions

which are returned to duty status. Many military physicians consider that once the individual with a medical impairment has been marked "duty status" that medical rehabilitation has been accomplished. Experience indicates, however, that the individual with a medical impairment is a continuing responsibility of the medical services.

We will assume that the individual who has been marked "duty status" by the ward physician has reached the maximum benefit of hospital care both physical and mental, inasmuch as these components must be restored before effective job placement and occupational adjustment can be expected. What then are the responsibilities which the medical service must assume after the individual has been marked "duty status?" Medical service personnel must communicate with the unit personnel officer concerning the environment in which the individual can live and work, as well as his functional capacity for a military job.

A post-placement job follow up is highly desirable for the more severe medical impairments to insure that the personnel officer has assigned the military member to a job he is capable of performing, and to insure that the individual is making the proper social and occupational adjustment, and also that his unit commander is satisfied with the job he is accomplishing. It may be argued that these latter functions are not properly the responsibility of the medical services. These functions are assumed in industry by the occupational medicine specialist and his staff and I believe there is a great need for the same functions to be performed in the military services.

At basic combat training centers, the mental hygiene consultation service of the Army is doing a remarkable job in fulfilling this obligation for individuals with psychosomatic manifestations. I hope that one day we will have trained personnel who will perform these functions in job placement, counselling and post-placement follow up at every post, camp and station. Whoever assumes this responsibility will need trained professional personnel (social service workers, vocational counselors) to assist him, both commissioned and enlisted.

When we have returned the individual to a "duty status," and he has been placed in a job he is capable of performing, in an environment in which he is capable of living and working, and when he has made the proper social and occupational adjustment to this, then I consider that we have fulfilled our responsibility of medical rehabilitation.

Dr. Shields: Rehabilitation has many facets, people who are victims of accidents in peace and war are frequently disfigured. Much work has been done in recent years to relieve the results of disfigurement, improve function, and to establish, as much as possible, the appearance of being normal. Dr. Niiranen, will you talk to us about this subject?

REHABILITATION—PLASTIC PROSTHESES

By
CAPTAIN V. J. NIIRANEN, *Dental Corps, U. S. Navy,*
Head, Training Aids Department, U. S. Naval Dental School,
National Naval Medical Center, Bethesda, Maryland

THE aim of maxillofacial prosthesis in rehabilitation is to enable people disfigured by disease, accident, or war to resume their normal place in society. The object is rehabilitation—defined by Webster as "to put on a proper basis or into a previous good state again, to restore; to reestablish."

Dr. Aelred C. Fonder of Winnetka, Illinois, has spoken of the satisfaction to be derived from working toward this goal;

"It is extremely gratifying to see that

during this materialistic, dollar-hungry age, there are many doctors dedicating a great deal of their time to work for the handicapped, a work we all know is more of a financial burden than a reward. There is immense satisfaction in rehabilitating these recluses and handicapped people and making them more fully equipped to carry their share of life's load, instead of being dependent on the rest of society."

The difficulties besetting present-day rehabilitation are many. I speak of maxillofacial prostheses. Very few professional men are doing this type of work. The cost to the patient, in many instances, is beyond his reach. Finally, little publicity has been given to the rehabilitation services available.

The remedies for this situation are obvious enough, even if their accomplishment is not so simple. First, the professional schools must provide more opportunity for students —both at the undergraduate and the graduate levels—to learn the skills necessary in this type of work. Second, community support must be provided, so that hospitals can provide the service for those unable to bear the cost. Finally, a publicity campaign of some kind should be instituted, so that the general public will know more about the achievements and potentialities of this type of rehabilitation, and so that donations can be made to further this research.

The purpose of this paper is to present the scope and methods of maxillofacial prosthesis, and briefly to review current efforts at the Naval Dental School, National Naval Medical Center, Bethesda, Maryland, to rehabilitate patients through the use of modern technics, facilities, and materials.

Scope and Methods of Maxillofacial Prosthesis

General. The question is often asked, "Wherein lies the need for maxillofacial prosthesis?" The answer is this:

To save patients' lives, it frequently becomes necessary to perform radical and disfiguring surgery. Automobile accidents alone cause a great number of disfigurements which require this type of service.

Often the sequel to disfiguring surgery is the need for plastic surgery, and for some people this may not be possible. The cost of such surgery may be beyond their means. Even when plastic surgery can be undertaken, there is a long interim of healing following the original procedure. Again, plastic surgery is sometimes contraindicated in patients of advanced age. It is also contraindicated for some cancer victims—namely, those who received large doses of radiation.

A prosthesis is frequently the only answer to such problems. It is far less expensive than plastic surgery; it can help rehabilitate the patient socially during the healing period following original surgery; it can be well adapted to the needs of aged patients; and it may readily be used by cancer patients.

Depending on community demands, the dentist with training as a prosthetist either can serve as a full- or part-time member of a hospital staff, or he can extend his private practice to include maxillofacial prosthetic restorations.

In large hospitals there is constant need for surgical splints, stents, and various other appliances. The dental department is also called upon to form and help insert tantalum and acrylic cranial plates. Cleft palate cases are usually plentiful in large hospitals. The making of obturators can certainly be included in the scope of the maxillofacial department. The mental boost to the patient is in itself a reward.

Outside the hospital, the maxillofacial prosthetist will find that moulages of before-and-after treatments are of great value for clinical use, museum records, lectures, and clinics.

The needs of rehabilitation in this country present a large number and wide variety of potential maxillofacial patients. To be sure, the most dramatic type of rehabilitation case is the patient whose appearance confines him to a hospital. Here his contacts with the outside world are limited to a few relatives, and his disfigurement is concealed by a large bandage. But the number of these is relatively few. More important because of their

numbers are the less spectacular patients who are aware at all times of their conspicuous deformities and disfigurements. These sensitive persons suffer mental discomfort and may consciously limit their social contacts. This much larger group presents both a challenge and an opportunity to the maxillofacial prosthetist.

Therefore, regardless of how limited or how extensive the use a dentist makes of his maxillofacial prosthetic training, he is—because of it—in a position to render a service to his community beyond his customary dental contribution.

Why Is Dentistry Called Upon to Perform This Service?

Dentistry is the profession to which the problems of maxillofacial prosthesis are properly referred. These problems, which include a combination of anatomic, physiologic, mechanic, and esthetic factors, are identical with those in the province of prosthetic dentistry.

The dental profession has a thorough knowledge of the materials used in maxillofacial prosthesis. These include methyl methacrylate, copolymers and vinyl resins, liquid latex, and many others. The technic of preparing and fabricating a maxillofacial prosthesis nearly always necessitates the taking of accurate impressions not only of the affected areas, but of like normal parts of a "donor"; and accurate impression-taking requires the use of one or another of the many types of dental impression materials, the selection being dictated by the peculiarities of the case.

There are challenging problems where physiology, asepsis, and esthetics, considered separately, suggest different and incompatible solutions. For example, the material most lifelike in appearance may not be tolerated by certain tissues. Consequently, even with the wide range of training which the dentist has, his ingenuity is often taxed in the fabrication of intricate and unusual appliances. In this discussion, special attention will be given to: (1) ocular prosthesis, (2) oculofacial prosthesis, (3) auricular prosthesis, (4) craniaplasty, (5) surgical aids, and (6) obturators.

Ocular Prostheses. World War II caused a short supply of the special glass necessary for the manufacture of glass eyes. Plastic materials, originally used as a substitute, have since proved to be far superior to glass. Several methods of fitting have been used—namely, (1) stock plastic ocular restorations from stock sizes, (2) stock ocular prostheses which are individually modified with an impression, and (3) individual prostheses fabricated from an accurate impression of the prepared eye socket. The remaining eye is used as a guide for the fitting, contouring, and coloring. Because of the accurate fit from the impression, the individually fabricated prosthesis does not create irritating pressures, or inhibit the flow of lacrimal fluids. The positive contact of the prosthesis to the prepared socket results in maximum movement of the prosthesis, and this movement adds to the esthetic equality. The use of the individual prosthesis permits the prosthetist to correlate his work with the growth of children, for the prosthesis can be enlarged as the child grows. In this way, he can maintain both desirable esthetics and proper tonus of the surrounding tissues. The patients are furnished with two eyes—one with a small pupil for day wear and one with a large pupil for night wear.

Oculofacial Prostheses. Cases in which tissues surrounding the eye, as well as the eye itself, are removed present a multiple problem. Whether removal was due to trauma or disease, the problem involves adequate esthetics, comfort, and accommodation to lack of function. A resilient copolymer of vinyl resin, which very closely duplicates the texture, feel and coloring of normal tissue, is used to stimulate closely the tissues of the face. The ocular restoration is fabricated from an acrylic resin as described above. Although the prostheses are not fastened mechanically to glasses because of their excessive movement, they are used as a stabilizing element, and a tissue adhesive is chiefly relied upon for retention. Prominent spectacles are prescribed for the patient to blend in with

the marginal contours of the prosthesis; even conservatively tinted lenses may be used. The patient is instructed to use minimum movements of the remaining eye, and to use head movements to compensate; he is also carefully instructed on good hygiene of the affected tissues and in the careful maintenance of the prosthesis itself.

Auricular Prostheses. The loss of an ear creates a very noticeable disharmony in facial esthetics, and a plastic prosthesis can be both realistic and comfortable. To fabricate the restoration, an impression is taken of the defect, and of a donor's ear of similar size and shape. After laboratory procedures, a resilient plastic ear is processed against metal molds. Several types are furnished the patient—namely, a prosthesis of normal color for everyday wear, a dark one to wear when the patient has acquired a sun tan, and a reddish prosthesis to be worn in cold weather. If possible, the prosthesis is held in place by mechanical retention to tissues and by a skin adhesive compatible with the tissues. The life of the prosthesis, even with proper use, is only 2 or 3 years. Therefore, both the metal mold and the basic skin color of the patient are catalogued, so that further prostheses can be sent to the patient without having him make a long, expensive trip to the hospital.

Cranioplasty. Important in the rehabilitation of the injured is the proper replacement of a lost portion of the skull. The defect can be managed by metal or plastic restorations. The plastic used, namely, methyl methacrylate, is carefully distilled to remove the adulterants normally found in the polymer and monomer. Processing of the acrylic is carefully accomplished so that the final product is dense, strong, and compatible with the surrounding tissues. Several methods are used with plastics: (1) the one-stage operation in which self-polymerizing acrylic is used; (2) the one-stage operation in which a preformed acrylic plate is made from an impression of the defect and surrounding scalp; (3) the two-stage operation in which a plate is formed in a short time from an impression of a prepared defect, and inserted while the patient is still in the operating room; (4) a one-stage operation in which an acrylic replacement is fabricated from the excised bone; and (5) a two-stage operation in which the defect is prepared at the time of debridement, an impression is taken, and the restoration is processed from methyl methacrylate and is inserted later.

Surgical Aids

Among various departments in the hospital, the talents of the prosthetist are in great demand for surgical aids consistent with the problem at hand.

The plastic surgeons constantly require the many stents and appliances which aid in the surgical problems of the department. Also important during the long hospitalization period is the temporary facial rehabilitation accomplished with prosthetic restorations. Many stents and surgical aids are required by the general and orthopedic surgeons. For the eye, ear, nose, and throat service, various implants, stents, conformers, and surgical aids are a necessity. The stents are fabricated from injection-molded methyl methacrylate, and are highly polished for compatibility with the surrounding tissues. The over-all result is a highly efficient and clean surgical aid. Much research could be done on new orthopedic surgical aids, such as joints fabricated from a combination of chrome-cobalt steel and compatible plastics.

Obturators

Extra-oral, intra-oral, and combination type obturators often tax the skills of the prosthetist, especially where function and esthetics are both a problem. A combination of hard plastics, resilient plastics, precision attachments, and even magnets put together in harmony results in a functional and esthetic prosthesis. Many patients have multiple problems, such as the loss of the nose, upper lip, and anterior half of the maxilla. Again, with a combination of the modern plastics, the patient can be rehabilitated both functionally and esthetically.

Conclusion

Maxillofacial prosthesis, a long neglected service to unfortunates who are disfigured,

is within the reach of the dental profession, especially today when we have at our disposal modern technics, facilities, and materials to rehabilitate these patients. Continued efforts should be carried on to extend this service to the thousands of patients, sitting in the back room, who should be reintroduced to the normal ways of American life.

The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the view of the Navy Department or the Naval Service at large.

REFERENCES

Fonder, Aelred, C.: Healing must include the spirit, Mod. Hosp. 82:54, 1954.

Naval Dental School Training Aid Brochures.

Niiranen, J. V.: The plastic ocular prothesis, U. S. Naval Med. Bull. 47:5, 1947.

Research Reports: Niiranen, J. V.: The ocular prosthesis research project X-578, U. S. Naval Dental School, Report No. 1. Towle, H. J., Jr.: The hand and digit prosthesis, research project X-573, U. S. Naval School, Report No. 2.

Maxillofacial prosthesis, research project X-573, U. S. Naval Dental School, Report No. 3.

Dr. Shields: As a result of an Executive Order of the President in 1952, the Veterans Administration has major responsibility for the care of long-term illness for members or former members of the Uniformed Services. Dr. Newman, will you tell us about the Veterans Administration in the rehabilitation program?

DYNAMIC PHYSICAL MEDICINE AND REHABILITATION IN THE VETERANS ADMINISTRATION

By

LOUIS B. NEWMAN, M.E., M.D.*

(Three illustrations)

THE Veterans Administration is faced with the tremendous task of rendering total rehabilitation for large numbers of sick and disabled veterans and of necessity requires definite policies and procedures governing their care, an adequate number of trained personnel and sufficient physical facilities.

Through Executive Orders by the President of the United States, the duties, powers and functions incident to the hospitalization in Veterans Administration hospitals of members or former members of the uniformed services is vested in the Administrator of Veterans Affairs who since December 1957 has been Mr. Sumner G. Whittier.

The total number of veterans in civilian life as of June 30, 1957, was estimated at 22,633,000, of which 427,000 were women veterans.[1] As of the same date, there were 173 Veterans Administration hospitals with a rated bed capacity of 128,421. Of these hospitals, 21 are designated as tuberculosis hospitals, 40 as neuropsychiatric, and 112 as general medical and surgical. The Veterans Administration provides for direct medical services to approximately 155,000 disabled veterans (Hospital care—114,000; outpatient and Dental care—15,000; Domiciliary care—26,000), through its Department of Medicine and Surgery.

The medical program since March 1955 has been under the direction of Dr. William S. Middleton, Chief Medical Director, who succeeded Doctors Paul R. Hawley, Paul B. Magnuson and Joel T. Boone.

Physical Medicine and Rehabilitation is part of the total medical care of the sick and includes the use of physical means in the diagnosis and treatment of disease or injury with the objective of restoring the

*President, American Academy of Physical Medicine and Rehabilitation; Chief, Physical Medicine and Rehabilitation Service, Veterans Administration Research Hospital, Chicago; Professor of Physical Medicine and Rehabilitation, Northwestern University Medical School, Chicago.

disabled persons to the fullest possible physical, mental, social, vocational and economic usefulness. Physical Medicine and Rehabilitation does not supersede or supplant the finest medical care, for its greatest benefits result when it is completely integrated and coordinated with the total clinical program.

It must be remembered that coordination does not merely mean the physical proximity of other services, but an actual productive working relationship between services. Complete integration of all activities and services such as, Medical, Physical Medicine and Rehabilitation, Psychiatric, Clinical Psychology, Nursing, Dietetic, Social Work, Vocational Rehabilitation, Special Services, and others, into a closely organized and functioning team is paramount for realistic total rehabilitation.

To achieve success the rehabilitation activities must be instituted as early and intensively as is medically feasible for a sufficient period of time for a motivated and therefore cooperative patient. Rehabilitation actually starts the moment first-aid is rendered in the fox-hole, aboard ship, or anywhere.

The Physical Medicine and Rehabilitation Service, as established in the Veterans Administration immediately after World War II, consists of the physiatrist (physician specialist in Physical Medicine and Rehabilitation), rehabilitation coordinator, Physical Therapists, Corrective Therapists, Occupational Therapists, Manual Arts Therapists, Educational Therapists, Speech Therapists, and Blind Rehabilitation Therapists. All therapists are well trained and qualified to properly institute prescribed therapy. Since October 1948, Dr. A. B. C. Knudson has been Director, Physical Medicine and Rehabilitation Service, having succeeded Dr. A. Ray Dawson, who followed Dr. Donald A. Covalt.

The Armed Forces, as well as some of the civilian institutions, have similar organizations.

Physical Therapy consists of medically prescribed diagnostic and therapeutic procedures utilizing heat, cold, hydrotherapy, ultraviolet and ultrasound radiation, massage, electricity and therapeutic exercise. Corrective Therapy comprises all types of therapeutic exercise that is medically prescribed to improve function and aid in performing self-care activities. Occupational Therapy consists of kinetic, metric, tonic and psychiatric activities utilizing primarily hand and foot operated tools for lapidary, jewelry making, ceramics, leather tooling, and others. Manual Arts Therapy is comprised of therapeutic and exploratory activities with the use of hand and power-driven tools and equipment for mechanical drawing, woodworking, radio and electronics, plastics, photography and others. Educational Therapy aids in exploring the patient's interests, improves the educational level, increases work capacity, aids in resocialization through academic, technical and commercial studies. Speech Therapy is medically prescribed for disorders in language and communication such as esophageal voice training following laryngectomy, and training of aphasic patients for the recovery of receptive and expressive language capacity in cerebrovascular disorders. Blind Rehabilitation Therapy aids the blinded in reorganizing and adjusting his life toward maximum usefulness with dignity.

In a number of Veterans Administration hospitals, Physical Medicine and Rehabilitation Bed Services have been established which function under the total responsibility of the physiatrist. After proper screening, patients are transferred from the other clinical services to this service when their primary needs are intensive Physical Medicine and Rehabilitation. In this manner, a coordinated and integrated total program is secured resulting in maximum rehabilitation usually in a shorter time with definite discharge planning and objectives, such as full or part-time employment, home or sheltered living and working environment, return to school, on-the-job training, etc.

Certain fundamental rehabilitation principles can be used in an approach to the care of the sick. Whenever an individual suffers illness or injury, he must be helped to allay or overcome the associated psychological and emotional factors that influence his behavior and acceptance of not only his disability but

also the rehabilitation procedures that are available to meet his needs. He must have a sincere desire to get well. The impact on his family is an important facet especially when considering disposition.

With those patients who will be unable to return to their former type of work due to their disability, vocational rehabilitation should be incorporated in the early planning stage of the total program. The keynote for successful employment is through selected job placement, wherein the individual's physical and mental abilities are carefully matched to the physical and mental requirements of the job, resulting in employment with a minimal or no handicap for even the severely disabled. During the patient's hospitalization many of the Physical Medicine and Rehabilitation activities can be exploratory toward a work situation. All planning for the patient's discharge must have a realistic goal. The more thorough the rehabilitation, the lower the incidence of hospital readmissions.

In the Veterans Administration a Medical Rehabilitation Board has been established to consider those patients who present unusual rehabilitation problems. Representatives of all the services in the hospital involved in the patient's total care are members of this Board and participate in joint planning.

Physical Medicine and Rehabilitation can be divided into three phases which frequently overlap to a degree. These phases are preventive, definitive and maintenance rehabilitation. Preventive rehabilitation consists of the procedures and activities necessary to prevent contractures, deformities and deconditioning. Definitive rehabilitation consists of those procedures necessary to correct already present deformities and contractures, to enhance function and build work capacity. Maintenance rehabilitation is essential in order for the patient to maintain his accomplishments and if at all possible to minimize the rate of regression in progressive diseases.

All patients, regardless of their diagnosis or disability, are completely evaluated by the physiatrist prior to the institution of any Physical Medicine and Rehabilitation. The Rehabilitation evaluation consists of a History (includes occupation, educational level, etc.); Physical Examination (includes all laboratory and x-ray reports); Diagnosis or Impression; Disability (hemiplegia, paraplegia, joint impairment, cardiac, pulmonary, psychiatric, etc.); Rehabilitation Objectives (relief of pain, improve function, performance of self-care activities, ambulation, aid in psychological adjustment to illness and hospitalization, etc.); Physical Medicine and Rehabilitation Activities (functional evaluation, including performance of self-care activities, and specific therapy prescription); Special Considerations (precautions and restrictions to be observed during therapy, such as fatigue, pain, cardiac, continuous observation of some psychiatric patients, etc.).

In all rehabilitation program planning, the type, rate, and amount of activities are governed by the general over-all medical status. A medically directed and supervised program is essential.

The total rehabilitation objectives must also include the performance of the maximum possible number of self-care activities. The Veterans Administration has developed a "Self-Care Activities—Functional Evaluation" form[2] which is used in evaluating and scoring these activities. This form includes 154 activities which are divided into the following groups:

Eating (drink from cup or glass, eat with spoon, eat with fork, etc.);
Communication (write, type, use telephone, open envelope, etc.);
Hygiene (shave, wash hands and face, brush or comb hair, brush teeth, get into and out of bath, get on and off toilet, etc.);
Dressing (put on and remove braces, put on and remove trousers, button buttons, use snaps, put on and tie shoes, put on necktie, remove objects from pocket, etc.);
Locomotion (sit up in bed, get out of and into bed, stand, walk, ascend and descend stairs, get into and out of automobile, etc.);
Household (open and close drawers, lock and unlock doors, get into and out of chair at table, open and close window, etc.);
Miscellaneous (wind watch, hold newspaper, turn pages, handle money, use needle and thread, open and close safety pin, etc.).

Periodically the patient is reevaluated and scored on the activities form in order to assess any progress.

Frequently the patient will require various types of assistive and self-help devices, such as splints, braces and crutches, in order to perform some of these activities. Disabled individuals should be properly fitted with and trained in the use of crutches, canes, braces and wheel chairs in order to properly perform daily living activities.

In those patients who require wheel chairs, careful consideration should be given to the exact details so as to meet specific needs. In general, wheel chairs should be of the folding type having the large drive wheels posteriorly, good hand brakes, arm and adjustable foot rests, thick resilient cushion seat, and when specifically indicated should have a zipper back, commode seat, and a head and back rest. Wheel chairs are made for "one-arm" drive, and for those who cannot propel the hand-driven chair, battery-operated ones are available.

There are numerous diagnostic procedures available on the Physical Medicine and Rehabilitation Service, such as functional evaluation procedures (muscle strength, range of joint motion, coordination), electro-diagnostic tests including electromyography, electrical skin resistance measurements, sweating pattern tests, oscillometric, plethysmographic, temperature tests, and others. Range of joint motion is measured with a goniometer. Muscle strength is accurately determined with the Myometer,[3] which is a small self-contained hydraulic instrument.

The Physical Medicine and Rehabilitation Service is concerned with the rehabilitation of veterans having various illnesses and disabilities, such as: the blinded, those with brain and spinal cord lesions (quadriplegia, paraplegia, hemiplegia, and others), the amputee, the deaf and those with speech disorders, those with rheumatic diseases, tuberculosis and other pulmonary disorders, cardiovascular diseases, those with psychiatric disorders, orthopedic conditions, and the many other medical and surgical disorders, especially those associated with the aging and aged, Figure 1.

Vet. Adm. Photo

Fig. 1. Amputee Veteran. This World War II veteran is bilateral above-knee amputee and as part of his Physical Medicine and Rehabilitation is being trained in ambulation with artificial legs and forearm crutches following preliminary training in parallel bars using temporary pylons.

Blind Rehabilitation

By Presidential Order of May 28, 1947, the responsibility for the social-adjustment training of the blinded servicemen was transferred from the Armed Forces to the Veterans Administration. To adequately handle the special problems associated with the rehabilitation of the blinded, a central blind rehabilitation section as part of the Physical Medicine and Rehabilitation Service was established at the Veterans Administration Hospital, Hines, Illinois, early in 1948,[4] under the immediate supervision of Mr. Russell Williams, himself a combat blinded World War II veteran. The success of this program depends upon the proper screening

of the applicant, properly trained personnel, adequate physical facilities, and a thorough understanding by all concerned with the problems associated with the blinded.

The blinded veterans are part of a nation-wide blind population of approximately 350,000. Since December 1, 1941, there have been over 2,000 veterans with service-connected blindness. This figure is based on the following definition of blindness:

> Central visual acuity of 20/200 or less in the better eye with corrective glasses, or central visual acuity of less than 20/200, if there is a field defect in which the peripheral field has contracted to such an extent that the widest diameter of visual field subtends an angular distance no greater than 20 degrees in the better eye.

Since the inauguration of the program at Hines, approximately 500 veterans have been discharged from this section.

The objectives of the program are to return the blinded veteran to his community as a useful citizen capable of productive living. The rehabilitation procedures consist essentially of:

Vet. Adm. Photo

FIG. 2. Blinded Veteran. A young blinded World War II veteran, as part of his many rehabilitation activities, is operating a wood-turning lathe under the close direction and supervision of the therapist to develop confidence, skill and work capacity. Note the safety face shield worn by the patient.

A. *Therapeutic Exercises.* To aid in developing the ability to perform self-care and daily living activities, including ambulation with the long cane, to improve general body conditioning, and to reach maximum physical performance capacity.

B. *Basic and Special Manual Skills.* Reading and typing Braille, the operation of various types of office and business machines, as well as hand and power equipment for the fabrication and testing of numerous devices is included, Figure 2.

C. *Vocational Goals.* The selection of a vocational goal is based on the blinded person's abilities, aptitudes, interests, his background of education and work history, and a knowledge of the possible employment situations into which he can enter with reasonable assurance of success, such as sales, law, assembly work, skilled trades, conducting businesses, operating dictaphones, typewriters, etc.

A great deal of research is in progress to aid the blinded. Three single-channel obstacle detectors, with pulsed infrared beam, transistor circuitry, and tactile stimulator output, are being tested by blinded individuals. The user can select a fair range, up to 10 feet, for routine walking and close range and for use in crowded circumstances. The development of a curb detector, as well as reading machines for the blinded, is in progress. The reading machine consists of a probe with two tiny lights and a lens that projects the image of the printed letter on a row of photoelectric cells as it is moved along a line of printing. The probe "sees the black" and this impulse turns on an oscillator to generate a specific pitch proportional to the height of the black portion of the letter "seen." These pitches are translated to sound patterns by earphones so that normal print including typewritten correspondence can be read.

Paraplegia and Quadriplegia Rehabilitation

The Veterans Administration program for these severely disabled veterans has resulted in maximum possible rehabilitation for a large proportion of such patients with a measure of self-independence, self-respect, and frequently a return to gainful employ-

ment. Seven Veterans Administration hospitals are specially staffed and equipped for the care and rehabilitation of paraplegia and quadriplegia patients, although many veterans with these disabilities are hospitalized in other Veterans Administration hospitals. 5700 of these veterans were treated in Veterans Administration hospitals between January 1, 1946, and September 30, 1955; and as of June 30, 1957, 1800 were hospitalized. During the fiscal year 1957, 322 paraplegia veterans, when medically feasible, were certified by the Veterans Administration for specially adapted housing in accordance with Public Law 702, 80th Congress, as amended.

As part of their Physical Medicine and Rehabilitation, these veterans were taught to perform the maximum possible number of self-care activities and with many, ambulation with crutches and braces was feasible, Figure 3. Paraplegia veterans are also taught to safely drive a hand-controlled automobile which affords, in addition to a normal means of realistic travel, a substantial measure of independence and satisfaction to himself, his family and friends.

Vet. Adm. Photo

FIG. 3. Paraplegia Veteran. A young World War II veteran with a spinal cord injury at thoracic-6 level, resulting in a complete spastic paraplegia, is learning to ambulate with crutches and bilateral long-leg braces as part of his many self-care rehabilitation activities. The crutches and braces must be carefully made and fitted to meet the individual needs of the patient.

AUTOMOBILES AND OTHER CONVEYANCES FOR DISABLED VETERANS

Public Law 663 was the first law which provided for an automoblie, the cost not to exceed $1600.00, for each veteran of World War II, who was entitled to compensation for the loss, or loss of use, of one or both legs at/or above the ankle, provided that the veteran was licensed by his State or other licensed authority to operate the automobile in a manner consistent with his own safety and the safety of others.

Public Law 187 provides for the payment, not to exceed $1600.00 on the purchase price for an automobile for each veteran of World War II or of the Korean conflict, who is entitled to compensation for the loss or permanent loss of use of one or both feet, loss or permanent loss of use of one or both hands, or permanent impairment of vision of both eyes.

GRANTS TO DISABLED VETERANS FOR SPECIALLY ADAPTED HOUSING

Veterans with certain specified service-connected diseases or injuries may obtain special assistance from the Veterans Administration in procuring suitable homes. Public Law 702, as amended by Public Law 286, provides that veterans are eligible for grants whose disabilities include "the loss, or loss of use, by reason of amputation, ankylosis, progressive muscular dystrophy or paralysis, of both lower extremities, such as to preclude locomotion without the aid of braces, crutches, canes, or a wheel chair." Assistance is authorized in the form of a grant of not more than one-half of the purchase price of a dwelling, specially adapted to the veteran's individual needs, with a $10,000.00 maximum single grant. Eligible veterans who already

own their homes may secure grants for the purpose of reducing outstanding indebtedness or to pay for suitable alterations.

Prosthetic and Sensory Aids

The prosthetic and sensory aids program implements other VA Medical care programs through the development, issuance, repair and replacement of prosthetic appliances, sensory aids and medical accessories. The 29 Veterans Administration Orthopedic Shops produced a total of 26,500 new appliances and made 29,500 repairs during fiscal year 1957. The 13 Veterans Administration plastic eye and restoration clinics produced a total of 8,200 new appliances and made 300 repairs. The Veterans Administration, the Prosthetic Research Board of the National Academy of Sciences, National Research Council, coordinated a broad cooperative program of research, development and education in the complex field of artificial limbs.

Audiology and Speech Correction

There are approximately 11 Veterans Administration and 44 contract clinics available for veterans for audiology and speech correction by competent personnel using the latest types of calibrated instruments. Research in technics appropriate to functional deafness and investigations in geriatric audiology are in progress.

Vocational Rehabilitation

The Veterans Administration plans and administers a nation-wide program of vocational rehabilitation for disabled veterans for the purpose of restoring employability lost by virtue of a handicap due to service-incurred disability. The program provides the services and assistance needed by the disabled veteran at each stage in accomplishing his vocational rehabilitation, from his initial application to his placement in suitable employment.

The Vocational Counseling Service is established as a therapeutic activity to assist patients and members in reestablishing their potential for gainful employment and permitting their fullest participation in hospital and domiciliary employment programs and productively oriented activities.

Other Federal, State, County and local agencies, as well as private institutions and organizations, are extremely helpful in providing vocational rehabilitation for those veterans with nonservice-incurred disabilities.

Domiciliary Centers

The Veterans Administration has approximately 17 Domiciliary Centers throughout the United States which provide care for those veterans who, due to disease or injury, are at least for the time being incapacitated from earning a living and who have no adequate financial means of support. However, the veteran must be able to perform most self-care and daily living activities and by his personal efforts, in some measure, however slight, share in the maintenance and operation of the domiciliary. All patients prior to transfer to a Domiciliary Center must be thoroughly reviewed by the Medical Rehabilitation Board to make certain that the fullest use has been made of all the potentialities for rehabilitation while the veteran is in a hospital status, and it has been medically determined that he is feasible for domiciliary care.

The establishment of a Physical Medicine and Rehabilitation program, both for preventive and maintenance rehabilitation in the domiciliary centers, has been an important factor in aiding the veteran adjust to his new environment and in the prevention of deterioration that frequently leads to hospitalization. It must be remembered that with many of these individuals in domiciliaries, the disabilities offer little hope for that type of improvement which would permit returning to community life, while with others the return to his home, and perhaps a job, full or part-time, would be a realistic goal.

Education and Training

Educational Programs and In-Service Training for medical and other professional Veterans Administration personnel including Physical, Corrective, Occupational, Manual Arts, Educational, Blind Rehabilitation, Audiology and Speech Therapists are instituted by the Veterans Administration. The Veter-

ans Administration through the Deans Committees is formally associated in undergraduate and postgraduate medical education with 75 medical schools in the United States and Puerto Rico. At present there are 38 residents in training in Physical Medicine and Rehabilitation in 23 Veterans Administration Hospitals. The American Board of Physical Medicine and Rehabilitation was organized in 1947 for certification in the approved specialty.

Research

Since the functioning of the human body is so complex and complicated, no final word will ever be written insofar as diagnosis and treatment is concerned, and therefore both basic and clinical research must be continued in order to achieve the maximum for the sick. During calendar year 1957, the Veterans Administration research program supported 5,251 projects, many of which were in Physical Medicine and Rehabilitation in conjunction with other clinical services.

Some of the Physical Medicine and Research projects have been: (1) evaluation of energy expenditure in the performance of self-care activities in various disabilities; (2) the effects of ultrasound radiation on nerve conduction, spasticity and pain; (3) the effect of changes in environment on cardiovascular, respiratory and rheumatic diseases; (4) the effect of various physical agents in peripheral vascular disorders; (5) evaluation of the effects of therapeutic exercise on spasticity and spasms including electromyographic studies; (6) circulatory and temperature changes in extremities when exposed to ultrasound radiation; (7) effect of environmental changes in certain types of psychiatric disorders; and many others.

Summary

The Veterans Administration through its care of veterans plays an important role in the maintenance of National Health. The Physical Medicine and Rehabilitation Services in the Veterans Administration have achieved a good measure of success in the tremendous task of rehabilitation in its 173 hospitals and 17 Domiciliary Centers. As part of the total management of the sick and disabled, its greatest benefits are secured when it is completely integrated and coordinated with the clinical program. Rehabilitation is economically sound for its "back to work with increased performance ability." Thorough rehabilitation means less hospital readmissions.

With the ever increasing number of veterans with mental disorders, industrial, household, transportation, and other injuries, and the many diseases associated with the aging and aged, the scope of Physical Medicine and Rehabilitation and the rendering of therapeutic benefits is expanding. However, the need for trained rehabilitation personnel is ever present and presents a critical category.

Both clinical and basic research increase the hope of rendering improved rehabilitation procedures for a greater number of individuals with a restoration of happiness, satisfaction, and dignity. Through the working together of all of the agencies and branches of American Medicine, the Nation's Health will be safeguarded and the rewards ever gratifying.

References

[1] Administrator of Veterans Affairs—Annual Report for Fiscal Year 1957, United States Government Printing Office, Washington: 1957.

[2] Self-Care Activities—Functional Evaluation, Form 10-2617. Washington, D.C., Veterans Administration, June 1953.

[3] Newman, L. B.: A new device for measuring muscle strength—the myometer. Arch. Phys. Med. & Rehab., 30:234, 1949.

[4] A New Approach to the Rehabilitation of the Blind. Veterans Administration Pamphlet 10-32, Washington, D.C., Veterans Administration, February 1950.

Dr. Shields: As physicians we must assume that every one of our associates as well as most members of the co-professional groups are directly concerned with the problem of rehabilitation. At the present time surgical therapy is a most hopeful method of treating patients with malignancy, particularly in early stages. Dr. Copeland, we would appreciate hearing from you concerning the subject of Malignancy and Rehabilitation.

REHABILITATION AND CANCER

By
MURRAY M. COPELAND, M.D.
Professor and Chairman, Department of Oncology,
Georgetown University Medical Center, Washington, D.C.

DR. HOWARD A. RUSK has pointed out that the first acts of rehabilitation in medicine are to alleviate the physical disability or to reduce physical disability to the greatest extent possible, and to retrain the person with a residual physical disability so that he can live and work at an optimum capacity.

Patients with cancer considered for rehabilitation may be divided into three categories: (1) Patients successfully treated but who suffer from disabilities brought about by treatment; (2) Individuals with disabilities in which the cancer has not been completely controlled; (3) Advanced cancer patients with wide dissemination of disease.

The primary problems of cancer are obviously centered around definitive medical and surgical care where possible.

The total number of cancer cases within a given period is much larger than the reported death rate. It includes the estimated unreported deaths of cured cancer cases and those incidental cancers found in individuals dying of other causes. In 1948 there were at least 286,000 patients with cancer in this country. In 1957 there were said to be about 450,000 new cancer cases diagnosed during that year. Such figures indicate the enormity of the problem which confronts us in caring for these patients, both from the standpoint of rehabilitation, where ablation of the disease is considered certain, and also in those patients who cannot be freed of their disease.

The estimated national percentage of cure in 1952 ranged from a high of 85 per cent for skin cancer down through 20 per cent for cancer of the breast, larynx and uterus to less than one per cent for cancer of the pancreas.

Among such cancer patients there are a wide variety of situations in which rehabilitation has significant implications. These include amputation of limbs, laryngectomy, radical mastectomy, colostomy or enterostomy, irradiation fibrosis and other debilitating problems. A rehabilitation program includes the correction of such disabilities and also encompasses diversional occupational therapy, psychotherapy and recreational activity.

AMPUTATION

In our Clinic, having considerable interest in bone tumors, amputation often poses a rehabilitation problem. One is always concerned with the status of the disease following amputation versus the appropriate rehabilitation program indicated. Unilateral amputation above the knee is our most common surgical disability and often presents accentuated problems in rehabilitation because of the extent of the amputation. It has been our great pleasure to be associated at Georgetown University Medical Center with Dr. Charles Shields, Professor of Physical Medicine. He has been most helpful in the team work of rehabilitating many of these patients. I have noted his accomplishments in handling these cases. It is obvious that his successful management is based upon carefully evaluating the needs of each patient and staging the rehabilitation process in a step by step procedure. Team work includes cooperation by the doctors, their technical associates, the patient and the limb maker, in order to gain the best results with amputees.

It has been our observation that, following amputation or hemipelvectomy, patients adjust to prosthetic appliances in direct relationship to their age. Older patients are rarely successful in using prostheses which are complicated or require considerable skill. Other factors to be considered in recommending an artificial limb include gaining the cooperation and understanding of the patient, as well as the question of his occupation and his need and desire for a prosthesis. There

is also the practical matter of giving the patient a realistic expectation of what may be accomplished by a prosthesis and teaching him to accept it.

Radical Mastectomy

Rehabilitation problems associated with radical mastectomy include disability effects, cosmetic defects and emotional trauma. When the post-operative course has been reasonably satisfactory from the standpoint of viable skin flaps, good residual vascular and venous flow, etc., the rehabilitation program in the early post-operative stage is designed to prevent contraction about the shoulder, edema of the arm on the affected side, and to give best possible function of the arm. Contracture and edema, of course, can also be prevented by careful surgery and gentle handling of the tissues. It is far easier to prevent the condition than to correct it. Our policy has been to have the patient use the arm to its fullest extent the day after surgery and, for this, we have been generously repaid with early free movement of the arm and hand, and with lack of fibrosis. In a great many instances, I am sure, it has prevented edema. A study of edema of the arm by Dr. John Haberlin and myself suggests that there are factors beyond the control of any rehabilitation program which bring about this unhappy complication. These include infection, the propensity for development of edema of the arm in obese patients following radical mastectomy, the problem of thrombotic phenomena in the residual veins following surgery, etc.

In patients with radical mastectomy when convalescence and full activity are delayed, we solicit the services of the Physical Medicine Department at once for advice and appropriate specific therapy. Once lymphedema has become established, active exercise of the extremity and gentle massage of the arm muscles should be carried out. Other therapeutic procedures available are: (1) compression of the edematous arm by elastic bandage worn around the clock for several days or longer, as necessary; (2) intermittent compression of the arm by the use of mechanical devices; (3) elevation of the arm on a pillow or by counter-weight traction for twenty-four hours or longer; and (4) heat, applied by hotwater bottle or heating pad. I have not found that surgical procedures achieve any lasting benefit.

A wide selection of inexpensive cosmetic breast replacements can be found in many of the department stores nowadays and, usually, there are sympathetic clerks available to discuss the matter with the patient. There is at least one store in the city of Washington where a former patient, having had radical mastectomy, is a clerk in the prosthetic breast department. The appliances should be checked by the physician in order to determine whether a satisfactory fitting has been made, as well as to further encourage the patient to wear the appliance and appreciate it. A sympathetic attitude on the part of the surgeon from the beginning frequently circumvents significant psychologic trauma. The doctor-patient relationship is extremely important here. It should not be necessary to call on a psychiatrist for aid in the majority of patients so treated.

Colostomy and Enterostomy

The doctor's approach to patients following enterostomy and colostomy must be individualized, both in caring for their psychosomatic problems and in the selection of prosthetic appliances for use in such cases. It is wise to advise such patients, prior to surgery, that the outcome may require an interruption in the bowel lumen, and that it may be necessary to have an outlet situated in the abdominal wall. In the post-operative period the patient most often shows concern about the problem of elimination and establishing social relationships. As the convalescence progresses, he is fearful of his future economic situation in terms of questioning his ability to work with this physical handicap. It is highly necessary to reassure such patients continually as to the adjustment one can make in using the appliance, and in the habit forming capabilities of bowel function

through an enterostomy opening. Frequent reassurance that there is no further evidence of disease is also indicated. In short, every effort should be made by the physician to build up an optimistic attitude on the part of the patient concerning his outlook socially, economically and from the standpoint of his future health.

The essence of success in the handling of these patients lies in training them early in their convalescence to use the necessary appliances and in the detailed care of the enterostomy and colostomy, with emphasis on maintaining a normal physiological function. Personal instruction and demonstration should be started as soon as possible in performing self-care activities.

Laryngectomy

Patients who have undergone laryngectomy for carcinoma are relatively rare. There are at the present time about 140 to 150 cases a year, throughout the United States. Psychic trauma is notably accentuated in these patients unless planned psychotherapy is instituted prior to surgery. A sympathetic attitude must be adopted from the start. Careful and detailed explanation must be made to the patient concerning the necessity for the operation and what rehabilitation measures are possible. Depression is often a difficult problem in the early post-operative phase. This is followed by anxiety over the loss of voice and the problem of future livelihood. Today we have speech training by various techniques of air control, including oesophageal and gastric speech, as well as speech by mechanical devices and electrical equipment. Proper training leads to highly gratifying results. A prompt visit by a laryngectomized patient with adequate voice training is a great boost in morale to patients who have just undergone this operation.

Resections in the Oral Cavity

In the modern treatment of carcinoma about the mucous membranes of the oral cavity, it has been found necessary and advantageous in specific cases to remove portions of the alveolar ridge and hard palate; to do a superior maxillary resection or, often, to do a partial mandibulectomy or a hemimandibulectomy, together with excision of appropriate soft parts, in curing carcinoma in this area. Exenteration of the eye or combined exenteration of the orbit and superior maxilla is occasionally found necessary. It is obvious that considerable defect and morbidity may be a residual complication, requiring extensive rehabilitation. The team work here includes a physician trained in physical medicine, a dental physician, a plastic surgeon, as well as the general surgeon. Muscle tone may often be preserved by appropriate electrical stimulation and massage during a period prior to regeneration of nerve elements or until further plastic repair can be carried out. Prosthetic appliances should be planned in advance of the operative procedure by soliciting the help of a dental physician interested in this form of prosthesis. It is perfectly remarkable to observe the rehabilitation which may be accomplished with sympathetic care on the part of the physicians, and by the patient's increasing skill in the use of his prosthesis. A high degree of rehabilitation is often the rule. Plastic surgeons may contribute materially to the ultimate cosmetic appearance and function by the use of various forms of grafts and tissue transplants.

Palliative Measures

Many examples of successful rehabilitation of cancer have been cited above, following definitive treatment for complete control of the disease. Progress in dealing with the cancer problem, however, must not be measured solely by rehabilitation in cured cancer cases but, also, by the advances in palliative therapy. This, in the broad sense of the word, indicates rehabilitation of a temporary nature, but may be highly successful for varying periods of time. Gratifying progress has been made in extending useful life and rendering more comfortable patients who have inoperable cancer or malignant disease which has not been completely controlled by

appropriate therapy. Prolongation of active life up to five or more years in some patients with prostatic carcinoma, using antiandrogen therapy, is an encouraging milestone. It is significant because it arouses hope that, with a slightly more effective therapy, cures may be achieved. Many disciplines have contributed to palliation, including the use of chemotherapeutic, endocrinologic, surgical, radiotherapeutic and general medical supportive measures.

There is no chemical compound at the present time which can cure any type of disseminated cancer. There are *chemotherapeutic agents* available which are of value in the clinical management of specific tumors and which tend to hold the disease in sufficient abeyance so that the patient may enjoy an active, useful life for varying periods of time. Such drugs include nitrogen mustard and other nitrogen mustard-like compounds or alkylating agents, urethane, 6-mercaptopurine, myleran and others. *Endocrine therapy* includes both estrogen and testosterone therapy for use in cases of prostatic and breast cancer.

Surgery is one of the chief methods in the ablation of cancer. Definitive surgery and irradiation therapy can cure no more than 33 per cent of cancer patients, however. The physician must assume the responsibility of deciding when a case is possibly curable or whether surgery or irradiation can offer palliation in terms of prolonging life, alleviating pain and/or temporarily returning body function to a relatively normal status. No general rules can be laid down for palliative surgical procedures. The field of curative surgery has been greatly extended in the past decade through the advent of antibiotics, better knowledge of electrolyte balance, fluid and blood replacement and substitution hormone therapy. By the same token, surgical measures offer the surgeon the opportunity of carrying out significant palliative measures. Many times the surgical attack on cancer, with intent to ablate the disease, leads only to temporary palliation. Prolongation of life is an important objective in submitting a patient to surgery, even when metastatic involvement is present. The surgeon, however, must weigh the unhappy possibility of shortening life, without the benefit of palliation, against the alternative of nonsurgical palliation.

It is impossible to cover the entire range of surgical palliative procedures, but a few of the more important and practical procedures are listed below:

1. Oophorectomy and/or adrenalectomy, bilateral, in advanced cancer of the breast.
2. Orchiectomy and/or adrenalectomy, bilateral, in carcinoma of the prostate.
3. Simple excision, in selected cases, for fungating, uncontrolled carcinoma located in breast, about face, groin, etc.
4. Resection in various parts of the gastrointestinal tract with reestablishment of a functional lumen in the presence of metastases.
5. Neurosurgical procedures for relief of pain such as chordotomy, posterior rhizotomy, ablation of sensation in various branches of the sensory nerves.
6. Fixation of certain pathologic fractures of bone following metastases. Smith-Petersen nails or related devices about the femoral neck and intramedullary fixation by metal pins in the long bones have proved effective in addition to the use of roentgen therapy. Appropriate casts or traction apparatus may also be used for fixation.
7. Decompression laminectomy.
8. Amputation of extremities for uncontrollable, painful and/or fungating neoplasms.
9. Removal of certain organs containing uncontrollable primary cancer for palliation and temporary inhibiting of metastatic growth, such as kidney, bowel, thyroid lesions, etc.
10. Selected resection of regional lymph nodes with metastases to prevent fungation and/or painful and crippling edema, whether or not the uncontrolled primary tumor can be found.
11. Tracheostomy for inoperable obstructive lesions about the oral cavity, pharynx, larynx and neck.
12. Gastrostomy, gastroenterostomy, ileostomy or colostomy for inoperable obstructive lesions involving the esophagus, stomach and bowel.

Operative procedures which are more controversial from the standpoint of cure or palliation of malignant disease include:

1. Multiple organ excision.
2. Total gastrectomy for carinoma of the stomach.

3. Quarterectomy.
4. Supraradical mastectomy.
5. Pancreatic duodenectomy.
6. Second look operations.
7. Pelvic evisceration—including cystectomy.
8. Hypophysectomy for breast cancer.

There is a rising tendency on the part of the surgeon to attempt the well-nigh impossible, to restore the terminal cancer patient to health. A stormy post-operative course, followed by a tedious and difficult convalescent period at home, often awaits the patient and then, ultimately, a trip back to the hospital for terminal care. The surgeon must bear the responsibility of ignoring the anatomic and physiologic implication of "supraradicalism" in an attempt to cure cancer or to achieve palliation.

Ionizing Radiation

Ionizing radiations are most important as a therapeutic agent in combating inoperable cancer. Irradiation sources include external ionizing radiation, intracavity radiation, interstitial radiation and internal radiation given by mouth or parenterally. X-ray therapy, radium and artificial radioisotopes all play an important role in such treatment.

Radiation therapy may be curative in many cases and also provides appreciable palliative relief in many instances. It should never be given when it is obvious that no benefit will be achieved or actual harm may result. Certain tumor types and anatomical locations often preclude possible favorable effects from irradiation. Many attempts at curative irradiation become merely palliative in the end. Palliative treatment often does not require the concentration of dosage that is necessary to completely destroy a localized cancer. With moderate dosages of irradiation, relief of bone pain, healing of bone defects from metastatic cancer, and the suppression of disseminated disease from a variety of primary tumors (such as cancer of the breast, thyroid and kidney), are considerable medical achievements. Significant palliation in treating inoperable local tumors, lymph node metastases, pulmonary metastases, relatively localized lymphomas and chronic leukemia, emphasize the importance of radiation therapy.

General Medical Supportive Measures

The medical aspects of treatment have now assumed ever greater importance in those individuals having an inoperable tumor, or one that has become generalized, requiring palliation. Cachexia anemia and general debility require immediate correction. The relief of pain often does much for the patient's well-being. If narcotics are necessary, a judicious attitude must be adopted, making every effort to avoid massive dosages to gain immediate relief. By prudent medications, together with other methods of palliation, many patients continue a useful life almost up until death.

The problem of rehabilitation (successful palliation) in an inoperable cancer case is an individual one for every patient and, also, requires a careful appraisal of the attitudes, both of the patient and the family. Optimistic sympathy for the patient and his problem may serve to brace his morale and give him a lift upon which he may thrive from day to day. Whether a patient knows he has a malignant disease is not important. The vital question for the physician to answer is: has he conveyed a feeling of optimism to the patient about what he can do and is doing for him? The families of such patients must be thoroughly briefed and an air of courage and enthusiasm instilled into their demeanor.

Summary

The primary aim in the treatment of any cancer is the complete ablation of the disease. This envisions various single forms of treatment or combinations of treatment, with varying degrees of success. Cures are largely derived from adequate treatment of localized tumors. Following in the wake of such treatments, disability, cosmetic defect and psychologic trauma are encountered. Rehabilitation encompasses the correction of these problems to the utmost extent.

Inoperable or incurable cancers also present similar problems for rehabilitation. The

magnitude of this phase of the disease offers more of a challenge than taking care of the patient who has been successfully separated from his disease.

It has also been the purpose of this discussion to point out many facets of therapy which may be of benefit in rehabilitating these patients.

Dr. Shields: Chest surgery is a recognized surgical specialty and numerous medical installations are devoted to the care of patients who need these services. Rehabilitation in chest surgery demands very close cooperation between the surgeon and the specialist who is concerned with specific rehabilitation techniques. Dr. Walkup, would you discuss this subject?

THE EFFECT OF THE CHANGING PICTURE IN THE TREATMENT OF TUBERCULOSIS ON REHABILITATION PROGRAMS

By
HARRY E. WALKUP, M.D.
Chief, Surgical Service, Veterans Administration, Oteen, N.C.

DURING, and immediately following, World War II a large number of young military personnel had contracted and received treatment for tuberculosis. This fact led the Veterans Administration to develop elaborate tuberculosis rehabilitation programs throughout their hospital system. One of the primary purposes of these programs was to assist in the restoration of these veterans into a society rendered unfamiliar to them through their entry into the army at an early age which, coupled with a protracted period of hospitalization, had denied them the customary introduction into the responsibilities of adulthood. These emotional factors plus the stigma of "tuberculosis," imposed on them by an uneducated public, created numerous problems for the tuberculous veteran upon completion of treatment and termination of hospitalization.

As time elapsed in the post-war period, a more tolerant public, better educated into the problem of tuberculosis, was recognized. The patients themselves were growing into a more advanced age group and the majority of them had adjusted into adulthood and independent living in modern society. With these changes, plus others that we will discuss, the need for rehabilitation began to decline. The contracting rehabilitation programs were treating a different type of patient with problems that varied considerably from those in the early post-war era.

In addition to the sociologic changes, other changes occurred in the treatment and hospitalization of the tuberculous patient. The advent of specific anti-tuberculosis agents with subsequent long-term treatment regimens changed the treatment of tuberculosis from a chronic problem to a more acute one. This fact can best be demonstrated by examining the statistics. The number of patients presently being admitted to Veterans Administration Hospitals for treatment of tuberculosis has not been reduced. In fact, there was a 2% increase in new admissions to these hospitals during the last three years.* During this same three year period there was a 16% decrease in the average number of patients hospitalized for tuberculosis.* This seeming paradox (an increased admission rate with a decrease in number of hospitalized patients) can be explained by the fact that an equivalent number of patients are being treated for a shorter period of time, the average hospital time having decreased from just under a year to a little over eight months.

Another interesting observation is the fact that in 1954, forty-two percent (42%) of the tuberculous beds in the Veterans Administration were in general hospitals. By 1957,

---

* This 2% increase was from 1954 to 1956, inclusive. In 1957 and 1958 there was a decrease in number of patients admitted.

The decrease in duration of hospitalization stopped in 1957.

forty-five per cent (45%) of these beds were located in general hospitals, an increase of three per cent. The question arises as to what is causing this trend toward treating tuberculosis in the general hospitals. This can be explained by the fact that in this day of specific drug or antibiotic treatment the average tuberculous patient has a bacteriologic conversion from "positive" to "negative" in four to five months and only approximately

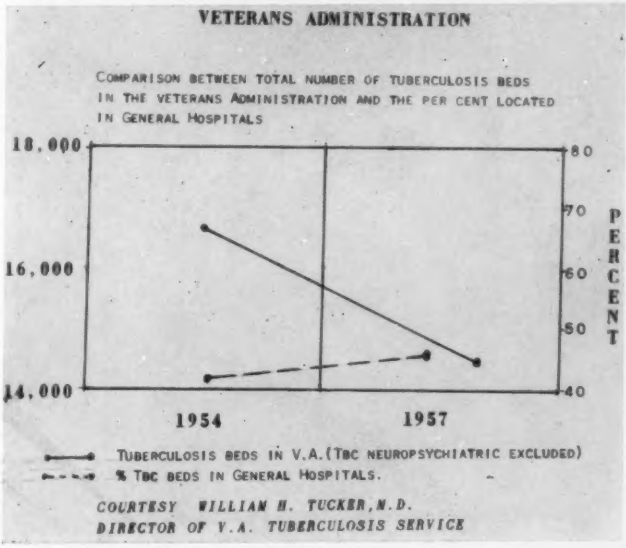

TABLE 1

thirty-three per cent (33%) of the hospitalized patients are infectious at one time. This is in contrast to the majority of hospitalized patients being infectious in previous years. This reduced infectiousness enables the hospital to restrict isolation precautions to the "positive" group. This fact, coupled with a shorter period of hospitalization, facilitates the care of these patients in the general hospital and reduces the necessity for a duplication of facilities for the tuberculous and nontuberculous patient.

Concomitant with this increase in tuberculous admissions to general hospitals one recognizes the fact that more so-called tuberculous hospitals are becoming general hospitals. The reason for this lies in the growing recognition of the fact that our modern treatment methods demand better laboratory and medical facilities that, in general, are better developed in the hospital catering to a larger variety of specialities. Another influence on this change is the fact that young physicians are no longer specializing in tuberculosis as a strict specialty but are considering the treatment of this disease as a component of internal medicine. Hence, a procurement problem exists in the tuberculosis hospital unless general medicine and surgery are also practiced on a reasonable scale. An additional factor that influenced this conversion of tuberculosis hospitals is the increasing number of elderly tuberculous patients being admitted to these institutions. These patients require more general medical treatment for a variety of geriatric conditions that are best cared for in the atmosphere of a general hospital.

Another change that we might mention, the inception of which actually antedates the specific treatment era, is that of tuberculous mortality. Table 1 indicates that the mortality was markedly affected by the application of Dr. Edward Trudeau's rest-treatment prin-

ciples in the early years of this century. The last decade depicted on this graph reflects the era of specific anti-tuberculous therapy. From this graph one must assume that specific therapy accomplishes more rapidly and efficiently the same end as our older methods of treatment. This end is realized with a further reduction of mortality and a less extensive use of both major and minor surgical procedures. The progressive and continued reduction in mortality plus the shortened period of hospitalization reflects a decrease in patients with more extensive disease which provided a large percentage of rehabilitation problems in the past.

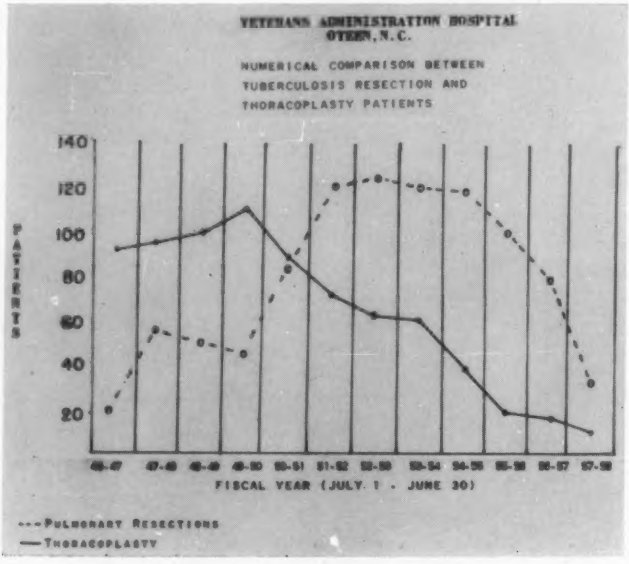

TABLE 2

The last major change in the treatment of tuberculosis that I would like to discuss is that of surgery which should include minor collapse procedures. The past twelve (12) years have seen the gradual decline of pneumothorax, phreniclasia and pneumoperitoneum therapy. In 1946, approximately fifty per cent (50%) of the total population of our institution were receiving one or more of the aforementioned minor collapse procedures. At the present time, less than five per cent (5%) are receiving this type of treatment. The major surgery of pulmonary tuberculosis has also undergone an interesting change (Table 2). From this graph one will note a rapid decline in major collapse procedures with a rapid increase in excisional surgery most marked in the fiscal year 1950. This increase in pulmonary resections for tuberculosis continued into the 1951 fiscal year and leveled off for the ensuing three years. However, the next three-year period witnessed a rapid decline in the number of these operations performed. This rapid decline reflects the influence of longer courses of specific treatment and the benefits derived from the delay of bacterial resistance through combined or dual drug therapy and the advent of potent substitution agents to employ when resistance finally occurs. Since these figures in Table 2 are absolute, Table 3 was prepared with the recognition of hospital census fluctuations in the study period. Hence, this table relates the per cent of thoracoplasty and excisional surgery patients to the average tuberculous patient census for the fiscal year in question. These relative figures more ac-

curately demonstrate the "rise and fall" of the major surgery in pulmonary tuberculosis over the 12 year period.

We now come to the question as to how does the changing picture in the treatment of tuberculosis effect the rehabilitation programs? Certainly, the sociologic changes, the increased average age of the veteran patient, longer as great as it was in the immediate post-war era.

The last and most important consideration for the rehabilitation departments is the trend toward hospitalization of the tuberculous patient in general hospitals and the gradual conversion of existing tuberculous hospitals into general hospitals. These changes

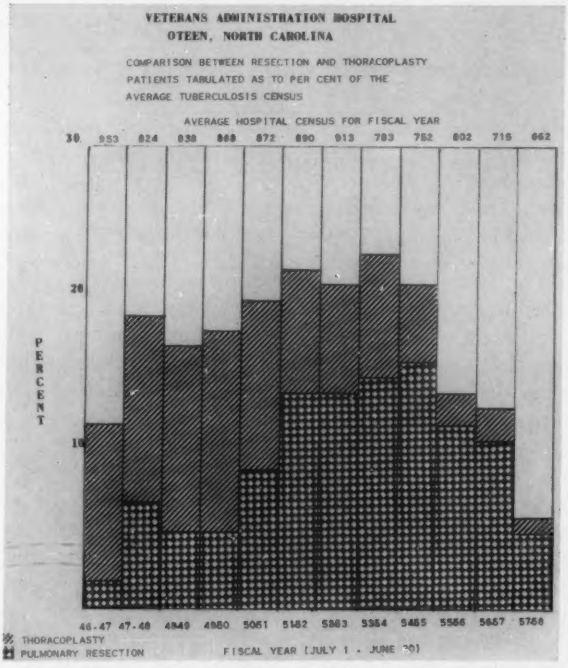

TABLE 3

the lessened period of hospitalization and the more rapid resumption of activity, reduces the need for occupational, educational and manual arts therapy. The decline of surgery in the treatment of pulmonary tuberculosis, and this is especially true in the operation of thoracoplasty, is removing the greatest challenge to the rehabilitation service. The impact of this change is felt most acutely by the physiotherapist. The eight-hour work tolerance, at the time of discharge, is still highly desirable, but this is accomplished in a shorter period of time in most instances and not infrequently while the patient is still receiving specific therapy. These changes add up to the fact that the over-all need for rehabilitation is no will directly effect the rehabilitation and physical medical divisions in both areas. The staffs of the general hospital will be required to acquire a knowledge of tuberculous rehabilitation problems whereas those presently devoting their entire efforts toward tuberculous rehabilitation will be required to broaden the scope of their knowledge into more general fields. The fact that tuberculosis is becoming an acute treatment problem, rather than a chronic one, illustrates the rapid advance in the treatment of this disease. We look forward to the time when tuberculosis will take a place among the conquered diseases of our time. Those of us interested in the treatment of this disease are directing our

talents toward the new maladies that inevitably arise to replace a controlled disease. The tuberculosis rehabilitation departments, who have played no small role in the treatment of this disease, are also sharing the victory by projecting their talents into other fields of medical endeavor.

ACKNOWLEDGEMENT

Acknowledgment is made to William Tucker, M.D., Director, Tuberculosis Service, Veterans Administration Central Office, Washington, D.C., for the Veterans Administration statistical data. Many of the thought patterns involving the Changing Picture in the Treatment of Tuberculosis have been expressed previously by Dr. Tucker.

Dr. Shields: The problem of total rehabilitation and the care of the whole patient are very well exemplified when dealing with patients in mental hospitals. Dr. Timm is particularly well qualified to discuss this area of rehabilitation.

PSYCHIATRIC REHABILITATION

By
OREON K. TIMM, M.D.

THAT sickness or disability is reflected in total personality disturbance is perhaps more evident in psychiatric disorder than in any other disease category. Regardless of specific diagnosis the psychiatric patient not only suffers personal distress, but he undergoes a change of relationship to his job, his friends, his family and his past life. If his illness is mild, or if acute and of short duration, these changes may be completely reversible, and on recovery premorbid patterns of living may readily be resumed. Unfortunately in a vast number of cases this happy outcome can not be hoped for. Rather we find that the patient appears to have recovered from his illness but cannot return to his former place in society, or in more serious instances the illness passes from acute to chronic.

Probably in all forms of illness but particularly in mental disease the overt clinical picture is the resultant of two factors: primary damage and symptoms directly produced by the noxious process, and secondary effects engendered by the reaction of the total organism to the primary disease.[1] Psychiatric therapy is oriented both to primary and secondary factors for they are equally potent in producing mental and social disability. The primary symptoms and manifestations of most mental illness can be looked on as the direct expression of defenses against intolerable anxiety engendered by unconscious impulses and aggressions arising within a personal relationship. Psychiatric therapy, either rational or empirical, relieves the patient of his symptoms to the extent that it succeeds in allaying or eliminating the underlying anxiety. During the active course of the illness the patient is himself unconsciously but powerfully driven to find relief from the threatening anxiety. Since it stems from an unconscious personal relationship he learns to avoid anxiety by avoiding all personal relationships. This avoidance reaction manifests itself as withdrawal and constitutes the source of the secondary symptomatology. This withdrawal, which is almost universally a prominent feature in the mentally ill, may be looked upon as a conditioned response, and it can be expected to become more fixed and enhanced the longer the primary disease process remains active. Conversely as the primary process subsides, spontaneously or through treatment, the remaining, often total disability resulting from withdrawal may be effectively attacked by deconditioning. This deconditioning, accompanied if necessary by retraining in abandoned social skills, is the essence of psychiatric rehabilitation.

The preceding comments apply generally to the chronically ill or "deteriorated" patients who make up the vast bulk of our

mental hospital populations. Patients who recover relatively rapidly from an acute illness sometimes require rehabilitation from another standpoint and will be briefly discussed later in this paper.

Deconditioning the withdrawn, apparently deteriorated, chronic patient involves leading him back into social interaction through carefully planned graduated programs or tasks. These are designed so that he experiences satisfaction in their accomplishment, and so that failure or frustration is avoided. It is important to emphasize that the activity involved in the program has little if any beneficial effect per se but the social interaction it produces is the critical issue. In other words the patient must experience some personal warmth involving the therapist and/or another patient or patients. The number of patients placed in a given activity will depend on the individual socializing capacity of each at the time. As the patient becomes easy in his relations with others in his group he is gradually insinuated into larger and more complex groups and activities. Since during this first phase of rehabilitation the activity, task, or program serves only as a vehicle to bring about satisfying social interaction, it may be recreational, educational, creative, productive, physical or industrial. It need only appeal to the patient's interest and be within his existing capacity to carry out successfully. Some workers have built their programs around single activities such as discussion groups[2] or a project to bring normal living on the ward.[3] Others[4,5,6] including the author[7] have utilized a wide variety of activities, seeking the one most suitable in terms of interest arousal and appropriate complexity for the particular patients concerned. I have reported elsewhere on a method and technic for sufficiently exact matching of patient and activity.[8] Freeman and Schwartz[9] described an effective approach in which the patients themselves choose their activity and therapist. It is interesting to note in passing that where re-socializing activities are not prescribed, patients may set them up on their own initiative.[10]

It has been generally recognized that where appropriate activity programs have been established and oriented toward satisfaction-producing relationships between patient and therapist or among patients that symptoms related to withdrawal tend to subside. This is not to say that all chronic withdrawn patients will respond to such a program. It must be kept in mind that this approach is basically deconditioning, and it is therefore certain to fail if the primary anxiety-producing process is still active. In such instances further specific therapy rather than rehabilitation is indicated.[11]

The second phase in the rehabilitation of mental patients concerns itself with getting patients out of the hospital when they have achieved satisfactory social adjustment within the hospital. It deals with motivation and economic resources of patients and attitudes of family, employers, and the general public.

The patient who makes a good recovery following a brief acute illness can usually return to his home and job without difficulty. However in some cases especially if there has been serious deviant behavior during the illness, the family may be reluctant to have the patient return, and/or he may be refused reemployment. Under these circumstances a social worker can often bring patient and family together through careful interpretation and professional support. The psychiatrist or a clinical psychologist may be required to counsel and support the patient and so prepare him for initial rebuff from former employer and community. The Vocational Counselling Psychologist can render valuable service in helping the patient readjust his occupational goals if indicated and provide practical assistance and contacts in finding new job opportunities. Needless to say when more than one professional discipline is called on in this kind of situation complete coordination of all involved is essential. Where recovery has been less complete, the same team may be required to render similar or more extensive services and to continue them for varying periods after departure from the hospital.

The rehabilitation of the long term chronic

patient who has been brought to social recovery presents a still more difficult problem. Such a patient is usually without adequate financial resources; his family ties have often been completely severed; he has frequently lost through disuse any occupational skills he may have once possessed; and he may have grown so conditioned to life in the hospital that he strongly resists leaving. Any or all of these as well as many other obstacles to rehabilitation often militate against the patient's movement from dependent hospital living to partial or completely independent community living. They have to be anticipated and planned for as it becomes evident that the patient is progressing toward a favorable outcome.

Lack of occupational skills may be compensated for to some extent by assignment to Hospital Industries or Manual Arts Therapy at the appropirate time in the activity program. Of greater promise are the Vocational Rehabilitation Services now offered by many states. They provide job training and job placement as well as living accommodations during training. In 1951 these state agencies placed 2,691 former mental patients in productive employment. This resource needs further development.[12]

Motivation toward independent living may well present the most difficult problem in the entire rehabilitation program. It has been successfully brought about by the activation of special wards or units designed for the purpose.[3] The most frequently used approach is through discussion groups led by psychologists, social workers, or nursing personnel or through individual counselling sessions.

Often patients lack financial resources necessary to sustain them during their initial period outside the hospital. Many hospitals now make provision for such patients to work in the community during the day and to return to the hospital for their evening meal and lodging. Provision is usually made for counselling at intervals, and when they have saved sufficient money to carry them over the critical period they are discharged—often to living quarters obtained with the assistance of social service. Another approach to the problems of the transition period is through paid employment in the hospital. This approach has the added virtue of utilizing the motivational potential of money. In the Veterans Administration hospitals the Member-Employee program functions in this manner.[13,14]

In conclusion it may be said that psychiatric rehabilitation utilizes the resources of all disciplines in the hospital armamentarium. It depends on their fully coordinated efforts in patient-oriented programs. This state of affairs is likely to prevail when Hospital Administration provides a fully integrated organization dedicated to doing the best job it can do for the benefit of all its patients.[15]

References

[1] Malamud, W., and Overholser, W.: Am. J. Psychiat. 114:865, 1958.

[2] Wadeson, R. W. Jr., Drye, R., and Green, P.: A.M.A. Arch. Neurol. & Psychiat. 80:363, 1958.

[3] Miller D. H.: Psychiatry 17:347, 1954.

[4] Reagan, C. H.: Arch. Phys. Med. & Rehab.: 34:40, 1953.

[5] Galioni, E. F., Adams, F. H., and Tallman, F. F.: Am. J. Psychiat. 109:576, 1953.

[6] Miller, D. H., and Clancy, J.: Psychiatry 15: 435, 1952.

[7] Timm, O. K., and Davis, J. E.: Mental Hygiene 35:69, 1951.

[8] Timm, O. K.: Amer. Arch., Rehab. Therapy 1:2, 1953.

[9] Freeman, R. V., and Schwartz, A.: Am. J. Psychiat. 110:139, 1954.

[10] Rubin, B., and Eisen, S.: Arch. Neurol. & Psychiat. 79:113, 1958.

[11] Wittkower, E. D., and Azima, H.: Arch. Neurol. & Psychiat. 79:706, 1958.

[12] Martin, G. J., Reisman, M. J., and Noyes, A. P.: Mental Hygiene 38:107, 1954.

[13] Peffer, P. A.: Am. J. Psychiat. 110:84, 1953.

[14] Rudd, J. L.: Arch. of Phys. Med. & Rehab. 38:505, 1957.

[15] Cuming, E., Clancy, I. L. W., and Cuming, J.: Psychiatry 19:249, 1956.

Dr. Shields: The rehabilitation of the amputee is a subject of great importance. It combines again surgical skills with rehabilitation techniques. Dr. Vultee will discuss this subject, placing the emphasis on the rehabilitation techniques and methods.

REHABILITATION OF THE AMPUTEE

By
FREDERICK E. VULTEE, M.D.
Associate Professor of Physical Medicine and Rehabilitation, Medical College of Virginia, Richmond, Va.

THE rehabilitation of the amputee encompasses a cooperative effort by the physician, the prosthetist or limb maker, and the therapist. It begins with the best surgical technique in the formation of the amputation stump, includes the utilization of sound engineering developments and ends with an individual who is prepared to resume a useful role in his particular society. The story of this program is a fascinating one in many respects, since its development and present status really represents a very short span of some fifteen or so years. The progress stimulated by the Veterans Administration and coordinated by the Prosthetic Research Board of the National Research Council, National Academy of Sciences is certainly as important to the amputee as the utilization of antibiotics is to the patient suffering from an infectious disease. It is marked by our present day concept of the realization of the value of the so-called team approach to the management of disability. Here, the physician draws upon many cooperating medical and co-medical aids for his best result. It is most important to realize, however, that the use of the team does not absolve the individual physician of his responsibility—no matter how many persons we have participating in the care of a single patient, one person, and that is the physician, must be responsible.

We are all somewhat familiar with the problems and needs of the amputee. We know that the stump must be properly formed, free of painful areas, have the best strength and a reasonable range of motion to develop maximum effectiveness. From here on, however, the management becomes considerably more demanding, since it requires prescription of the prosthesis. Proper prescription of an artificial limb is based on knowledge not only of the stump, but of the needs of the individual patient, and how best these needs can be met by assembling the proper components—hands, or hooks, wrist units, elbows, harness and control systems and materials. The number of components is increasing steadily as a result of the application of human engineering principles. It would seem nearly as difficult to keep up with as the overwhelming number of antibiotics now available, each to meet a special need. One may easily compare the prescription of a prosthesis to that of a general medical prescription. And never forget that as you provide specific instructions for the use of a drug in order to gain the best result, so proper instruction, or training must be provided in the use of the prosthesis. Our training periods are comprehensive, and again demand that the trainer have an intimate knowledge of the function of each component of the prosthesis, if the result is to be favorable. Our training techniques are shifting—the concept of training the patient to do a given task, such as lighting a match with his prosthesis, is giving way to the much more logical sequence of teaching a thorough knowledge of the prosthesis in various areas of action about the body, so that the patient has complete confidence in its use under all circumstances. Finally, we must realize that no matter how well the stump is prepared, how good the prosthesis and how effective the training, an amputee will use such a prosthesis only as long as the need for it exists.

Now it would seem from this that we have a fairly large problem in the management of the amputee. This is entirely correct, but has been solved successfully in the past by the use of specialized treatment centers within the Zone of the Interior, and would seem reasonably certain to be successful again in time of national emergency, providing a sufficient number of decentralized facilities are available, and at strategic locations over the country. The problem of staffing such centers with medical officers and others who

have knowledge not only of surgical but prosthetic techniques is a critical one, however, and to be met successfully requires that special training be provided and continued. Schools in these techniques are available at the University of California in Los Angeles and at New York University, and it is the responsibility of the medical services to see that appropriate physicians, therapists and limb makers be sent to these courses on a continuing basis to provide a constant pool of personnel who will be available to staff such centers and provide training for others as well. As these trained persons become available, they should be so classified that their skills will remain useful and not permitted to become stagnant.

Now it is not surprising to find that most physicians have little or no concept of this total management of the amputee patient. Neither is it disturbing, since we cannot expect every physician to have a complete knowledge of endocrinology, or cardiovascular surgery. Medicine has grown beyond the limit of every physician knowing all that is in the literature and applying it to his practice. This we must accept. I do think it important, however, for physicians to realize that we now have the techniques available to restore the amputee to maximum effectiveness in his home and in his work. This can be accomplished in over 90% of those persons who suffer amputation of one extremity, and proportionately less as the number of extremities involved increases. The physician can avail himself of these potentials by proper referral and followup, whether to another physician or to the facilities of a specialized treatment center.

Now, the ability to restore the amputee to maximum effectiveness in his society, however, does not necessarily imply that this effectiveness will be utilized, and it is this fact which I believe gives us greatest concern at this time. Our greatest defect, both now and for the future, is our failure to recognize the potentials of the amputee who has been successfully medically rehabilitated. The group here today represents a military society, and is no less guilty than a private society for failing to realize this fact.

The amputee population today represents a remarkable pool of potentially useful persons. Those individuals who become amputees while on active duty are equally as useful. Certainly their knowledge is no less complete because an arm or a leg is lost. We saw the beginning of an effort to utilize these people during the Korean conflict, when provisions were made for the retention on active duty of selected amputees, when they so desired. I had the pleasure of assisting in the preparation of these individuals for a return to duty status, but the distinct displeasure of seeing many of them return to the same military facility within a few months, prepared to meet a medical board for separation. These were well motivated persons, both officer and enlisted, and the reasons they gave for this decision all had a common denominator—they had been made to feel there was no place in the service for them. Many of them realized early that their commanding officers wanted no one with a lowered profile, particularly in a line outfit. All of them felt they were not given the opportunity to utilize their capacities effectively, thought therefore they would miss out on promotions, and soon came to believe they were better off out than in. There is no one person, one unit or one facility to blame for the less than desired success of such a well intentioned program—it is, rather, a manifestation of the almost universal attitude that an amputee, even with a prosthesis, is still only half a person. Nothing could be farther from the truth.

Now I did not come here today to sell anyone an amputee—but I do think that the potentials of the amputee must be realized, and first within the medical profession itself, and then by those whose positions it is to plan effective utilization of manpower. We must realize that in planning for a national emergency the services of the amputee can be remarkably useful. Especially is this so for those highly trained persons, trained at a cost of time and money, who become amputees while on active duty. Reasonable assignment

of such persons is medically and militarily a sound economic measure. While such manpower planning may not be in the realm of every military surgeon, the continuing advisement of the availability of the amputee is. Perhaps we must eventually give some consideration to altering our standards of disability, so that automatic retirement does not follow an amputation, but may occur only after a reasonable attempt at utilization within the military service has proven impractical or unsound.

Lastly, one hears the frequent cry from those in authority, whether a shop foreman or a commanding officer, that the amputee is less than worthless when he suffers a prosthetic breakdown. For the upper extremity amputee, this is grossly untrue—the person may be less effective temporarily but certainly still useful. The lower extremity amputee may be in a somewhat greater state of disability, but I have yet to see the artificial leg which could not be made functional by simple measures. For those of you who may doubt the ingenuity of the amputee, I would direct your attention to the Veterans Administration which has collected a large number of prostheses fashioned by American prisoners of war from bailing wire, barrel staves and anything else at hand, and which served remarkably under adverse conditions.

Dr. Shields: We have made an effort today to bring you the idea that if you are in any way associated with medical practice you are definitely associated with the field of rehabilitation in its specialty aspects and in its broadest concepts.

I wish to take this opportunity on behalf of the Association of Military Surgeons to thank these doctors for the fine job they have done this morning.

TRIPLER ARMY HOSPITAL

Tripler Army Hospital honors the name of Charles Stuart Tripler, 1806-1866, a distinguished member of the Medical Corps of the United States Army.

Construction of the present hospital, located in Honolulu, began in 1945. The official dedication was in 1948. This 1500-bed hospital serves all personnel of the Armed Forces and their dependents, with some beds allocated to veterans and the Public Health Service. The hospital is accredited for intern and resident training.

The present Commander is Major General Jack Schwartz, Medical Corps, U. S. Army.

EDITORIALS

White Fleet

IMAGINE yourself in some far off country where the medical facilities are greatly limited. You are working hard to take care of many patients. Some of these are cases for whom you would wish to have better medical facilities than those available to you. Then suddenly you hear that at your port city a fleet is to anchor and give you that assistance which you had hoped for. Surely your thoughts would be that a miracle had happened. Your patients would be greatly excited.

Life magazine recently tells of such a possibility. The idea is said to be that of Commander Frank Manson, U. S. Navy, now on duty in London, England. He would take some of our ships, equip and staff them for these mercy expeditions to those countries where modern medical methods would be welcomed.

The idea is a good one and it is particularly good if behind it there is a desire on our part to teach and a desire to learn on the part of people of the countries visited. The entire staff of such a fleet must be carefully chosen with the idea of accepting conditions as they are in the places visited and then *patiently* training the natives. The process would be a slow one and at times frustrating.

The cost would be great. But the money would be for constructive purposes. Popular subscriptions and volunteers would be required. That is the plan.

Life says this "White Fleet" could win more friends abroad for the United States than any other project since the Marshall plan. We are inclined to agree.

Fluorine in Water

THERE is no secret that the fluoridation of water program has its opponents as well as its proponents. Opposition to any program is healthy. But when this opposition overlooks or purposely ignores facts then that opposition becomes unhealthy. That is about the situation with the fluoridation program. Apparently the opponents are exerting a little more effort than the proponents.

The case for fluorine appears to be well established. In 1916, Dr. Frederick McKay reported mottled enamel to be a water borne disease and in 1931 this mottling was discovered to be due to excess fluorides. With this mottling, however, lower amounts of tooth decay were found. The next step was to control the amount of fluorides so as not to get mottling but still protect against decay. It was found that as little as 1.0 part per million fluoride in drinking water would do the trick.

Many communities decided for fluoridation and are in this way reducing the amount of dental caries in the younger generations. Today about 41 million people in the United States are drinking water containing the minimum or higher level of fluoride recommended. Some other countries have started fluoridation of water. While all this speaks well for the program, there are minority groups that have been able to retard progress.

We remember a situation that existed in our home town many years ago when there was a problem of increasing the water supply. The issue was: "Should filtered river water be used or must *pure* water be obtained from driven wells?" The matter became a political issue—one side maintained that river water could not be made fit for human consumption; the other side main-

tained that such water could be used for humans as well as horses. Eventually the great need for an adequate supply of water demanded the use of filtered river water.

When the state of dental caries in this country approaches a critical point—and that does not seem too far distant—it may be that the matter of fluoridation for the masses will be resolved. Until that time we can expect opposition to having fluorine put in public water supplies.

Only by continuing education will the program get the support it needs—a program endorsed by the American Dental Association and the U. S. Public Health Service.

Something to Consider

INSURANCE is not a new idea. However, we are doing a lot of talking about insurance of all kinds these days. It seems that there is a definite trend toward more protection for those things we have and for those persons we love and have obligations to—our families. Thus we insure.

Since 1954 your Association has had a Group Health program with an optional hospitalization provision. In 1957 a Group Accident Policy—a separate program—was added. Those who have enrolled in these programs which are backed by a large insurance company have many good words for this insurance. Your Association takes great pleasure in announcing a re-enrollment period commencing this month.

Weekly benefits up to $100 for life if disabled as a result of an accident and up to five years as a result of sickness form the nucleus of the program. Accidental death and dismemberment, optional hospital indemnity and waiver of premium help to create a really advantageous program.

The Group High Limit Accidental Death and Dismemberment Plan at a very modest premium is an attractive program in these days of so many accidents. Benefits are available up to $200,000 for any one individual.

Are you aware of the advantageous tax treatment that can be secured through the use of Third Party Ownership of the coverage under our High Limit Accidental Death and Dismemberment Plan? Through the use of Third Party Ownership provisions naming someone other than yourself as owner of the policy, estate taxes are minimized—and in many cases—eliminated. (1954 Internal Revenue Code.)

This insurance program is part of the benefits of membership. We want you to know about it. Descriptive brochures are being mailed this month.

The Association of Military Surgeons of the United States

Founded 1891, Incorporated by Act of Congress 1903
Suite 718, New Medical Bldg., 1726 Eve Street, N.W., Washington 6, D.C.
Telephone NAtional 8-2206
Official Journal: MILITARY MEDICINE

EXECUTIVE COUNCIL—1959

President:
MAJ. GEN. H. H. TWITCHELL
U. S. Air Force (MC)

First Vice-President:
REAR ADM. RICHARD A. KERN
U.S.N.R., Ret.

Second Vice-President:
LEROY E. BURNEY
Surg. Gen., USPHS

Third Vice-President:
MAJ. GEN. JAMES P. COONEY
MC, U. S. Army

Fourth Vice-President:
VACANT

Fifth Vice-President:
COL. ROBERT C. KIMBERLY
MC, Md. NG

Sixth Vice-President:
COL. WILLIAM S. MIDDLETON
MC, USAR, Ret. (Vet. Adm.)

Secretary-Editor
COL. ROBERT E. BITNER
U. S. Army, Ret.

Dental Section Chairman:
BRIG. GEN. L. C. FAIRBANK
U. S. Army, Ret.

Veterinary Section Chairman:
BRIG. GEN. J. A. MCCALLAM
U. S. Army, Ret.

M. S. C. Section Chairman:
COL. LEONARD P. ZAGELOW
USAF (MSC)

Nurse Corps Section Chairman:
CAPT. RUTH A. HOUGHTON
NC, U. S. Navy

Medical Specialist Corps Section Chairman:
MISS EDITH A. JONES
Diet. Dir., USPHS

Chapter Section Chairman:
COL. JAMES Q. SIMMONS, JR.
MC, U. S. Army

Executive Secretary (Ex Officio)
LT. COL. GEORGE M. BEAM
AUS, Ret.

BRIG. GEN. M. SAMUEL WHITE, USAF (MC)
BRIG. GEN. FRANK E. WILSON, MC, USAR
THOMAS A. FOSTER, Pharm. Dir. USPHS
COL. EDMUND G. BEACHAM, MC, Md. NG
COL. A. B. C. KNUDSON, MC, USAR (VA)

BOARD OF TRUSTEES, RETIREMENT FUND

BRIG. GEN. L. C. FAIRBANK, USA, Ret., Chm.
BRIG. GEN. J. A. MCCALLAM, USA, Ret., Treas.
JAMES P. LEAKE, Med. Dir. USPHS, Ret., Secretary

LIVING PAST PRESIDENTS

(Rank held at time of office)

ASST. SURG. GEN. JOHN W. KERR, USPHS (1921)
COL. FREDERICK H. VINUP, MC, Md., NG (1928)
ASST. SURG. GEN. RALPH C. WILLIAMS, USPHS (1933)
SURG. GEN. THOMAS PARRAN, USPHS (1939)
MAJ. GEN. CHARLES R. REYNOLDS, MC, USA (1940)
COL. JAMES A. MATTISON, Vet. Adm. (1942)
COL. LUCIUS A. SALISBURY, MC, N.Y., NG (1944)
ASST. SURG. GEN. WARREN F. DRAPER, USPHS (1947)
VICE ADM. JOEL T. BOONE, MC, USN (1949)
COL. WILLIAM H. TRIPLETT, MC, Md., NG (1950)
COL. ROBERT C. COOK, MC, AUS, Vet. Adm. (1951)
MAJ. GEN. HARRY G. ARMSTRONG, USAF (MC) (1952)
REAR ADM. WINCHELL MCK. CRAIG, MC, USNR (1953)
SURG. GEN. LEONARD A. SCHEELE, USPHS (1954)
REAR ADM. W. DANA, MC, USN (1956)
BRIG. GEN. AMOS R. KOONTZ, MC, Md., NG (1957)
COL. CHARLES R. MUELLER, U. S. Army, Ret. (Vet. Adm.) (1958)

PLAN TO ATTEND

THE

66th Annual Convention

Association of Military Surgeons of the United States

November 9, 10, 11, 1959
Mayflower Hotel
Washington, D.C.

No Registration Fee
Reserve Credit Points

Scientific Exhibits
Technical Exhibits
Excellent Scientific Program
Color Television
Medical Movies
Awards
Activities for Ladies

COMPLETE PROGRAM IN OCTOBER 1959 ISSUE

SUSTAINING MEMBERS

It is a privilege to list the firms who have joined The Association of Military Surgeons as Sustaining Members. We gratefully acknowledge their support.

ABBOTT LABORATORIES
AMERICAN STERILIZER COMPANY
ASTRA PHARMACEUTICAL PRODUCTS, INC.
AYERST LABORATORIES
BAXTER LABORATORIES, INC.
BECTON, DICKINSON AND COMPANY
BURROUGHS WELLCOME & CO. (U.S.A.) INC.
CIBA PHARMACEUTICAL PRODUCTS, INC.
COOK-WAITE LABORATORIES, INC.
CUTTER LABORATORIES
EATON LABORATORIES, DIVISION OF THE NORWICH PHARMACAL CO.
GENERAL ELECTRIC COMPANY
HOFFMANN-LA ROCHE, INC.
LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID CO.
LILLY, ELI, AND COMPANY
MALLINCKRODT CHEMICAL WORKS
McNEIL LABORATORIES, INC.
MEAD JOHNSON & COMPANY
MERCK & CO., INC.
ORTHOPEDIC EQUIPMENT COMPANY
PARKE, DAVIS & COMPANY
PFIZER, CHAS. & CO., INC.
PICKER X-RAY CORPORATION
RITTER COMPANY, INC.
ROBINS, A. H., COMPANY, INC.
SCHERING CORPORATION
SEARLE, G. D., & CO.
SMITH KLINE & FRENCH LABORATORIES
SQUIBB, E. R. & SONS, DIVISION OF OLIN MATHIESON CHEMICAL CORP.
STEPHENSON CORPORATION
UPJOHN COMPANY, THE
WARNER-CHILCOTT LABORATORIES
WINTHROP LABORATORIES, INC.
WYETH LABORATORIES

Around the World

(Ser. III, No. 11)

By
CLAUDIUS F. MAYER, M.D.

KIRGIZIA and the other four Central Asian republics are of great importance for the life of the Soviet Union. The health affairs of these *Central Asian republics* were discussed just a year ago (17-20 Sept.) at a meeting of the Soviet Academy of Medical Sciences held in the city of Tashkent. The plans for the development of medicine in Central Asia were examined, and D. A. Zhdanov, Deputy Chairman of the Scientific Planning Commission of the Medical Academy, analyzed the future plans of the Soviet government for the progress of medicine in the coming five-year period (1959-1965). The ministers of health of the five republics reported on their own *problems of regional pathology.* It was interesting to hear that Ibn Sina (Avicenna), famous medieval Arabic physician, is still held in high esteem in his native *Uzbekistan* where his "Canon of Medicine" was recently translated into the Uzbek and Russian languages. In this republic, the medical research is directed at dysentery, typhoid fever, brucellosis, leishmaniasis, rickettsial diseases, helminths, and endemic goiter.

Kazakhstan had three medical and nine scientific research institutes available for the advancement of medicine. In 1957, a fourth medical institute opened in the city of Aktyubinsk, and a scientific research institute was organized in the city of Karagand for *industrial hygiene* and occupational diseases. The special diseases of this republic requiring particular attention are tuberculosis, leptospirosis, Q-fever, tick encephalitis, grippe, poliomyelitis, and endemic hepatitis. Since Kazakhstan is a rapidly developing industrial region, the diseases of industrial workers, especially pneumoconiosis, silicosis, mercurial poisoning, air pollution, etc., are subjects of special studies.

The *Turkmenistan Health Ministry* promised to attack 19 medical problems, with a total of 209 individual approaches of research, during the 1959-1965 period. Some of the assumed tasks are the reinvestigation of the action of snake venom, the influence of tropical climate and of burns upon the body functions, cutaneous leishmaniasis, and its treatment, fight against the fungal diseases of the skin. As in other republics of Central Asia, here also much effort is given to the rationalization of treatment at the many *health resorts,* especially the Turkoman Molla-Kara and Bajram-Ala.

Tadzhikistan's chief goals in the field of regional pathology are the study of parasitic diseases, leishmaniasis, spirochetosis, and leptospirosis. Another growing problem is the study of adaptation of the human body to *conditions in the high mountains,* and the elaboration of reasonable standards for nutrition, work, and rest under such conditions. For the study of these problems, an *expedition* was sent in the current year to one of the high mountains, the Tyan-Shah in the *Pamir districts,* a region of great strategic importance.

In the *Kirgiz Republic,* the study of regional pathology aims at endemic goiter, echinococcosis, brucellosis, and infectious hepatitis. Research in industrial hygiene is directed at the study of the working conditions in the *cotton-purifying plants* of the state. Kirgizia, as a self-conscious state, will also devote some time to the history of medicine within its territory.

Regional pathology finds its renaissance in Soviet Russia where the opening of vast new territories to civilization makes medical people more and more conscious of the geographic setting and its influence upon the life and health of man. Thus, in other parts of the U.S.S.R. also, the study of regional pathology is emphasized. The Siberian in-

ternists, for instance, met at *Novosibirsk* to ventilate their own local problems of health. The meeting was organized by the Novosibirsk Medical Institute. Several lecturers talked of the possible virus etiology of rheumatism, one of the main diseases of Siberia. Others described the role of streptococci, of allergy, and of autoinfection in the origin of the disease. The morbidity level of rheumatism is higher in Siberia than in the European part of Russia. One wonders whether this is so because more young people are living in Siberia than elsewhere in Russia.

For the promotion of studies in regional pathology, various *new medical journals,* mostly written in Russian, are now being published in the Soviet Union by the health ministries of the autonomous republics. One of the youngest of such journals is issued at Tashkent, under the title *"Medicinsky zhurnal Uzbekistana."* (By the way! The number of medical journals is growing all over the world, in all countries, and it is always a pleasure to see the birth of a new member in the journalistic family. One of the most recent one is *Galenos,* a journal of medicine and surgery published bimonthly from Thessaloniki, Greece, the first number of which—in a slightly changed language of Homeros—was published last May. It includes interesting articles from the Pathological Institute of the Athenes University, from the Queen Friderica Hospital.)

It was perhaps the financial success of Boris Pasternak's "Doctor Zhivago" which moved a commercial group of Russian translators to translate into English the second edition of an old-time Soviet doctor's work on medical ethics under the title *Notes of a Soviet Doctor* (N.Y., 1959; 238 p.). G. S. PONDOEV, the author, is a practitioner at Tbilisi where he is a so-called "honored physician." With his work, he wants to guide the young practitioners into their new way of life. He shows them what the medical profession really means in a communist country. In his allusions to the history of medicine, which he makes only to contrast the historical wrong with his Marxist-Leninist right, he commits many errors. For his ideology there is nothing but the "October Revolution" and the dialectic materialism. To him, Aristotle was wrong. Virchow was wrong, Pavlov was right, and "it is only in a socialist society that the doctor could understand the meaning of true humanism."

At a much higher ethical level is the *"Plague Fighter"* of Dr. Lien-Teh WU, a distinguished scientist and Cambridge-trained Chinese physician of international repute whose autobiography (1959, Cambridge, Engl.; 667 p.), besides a vivid account of his personal experiences during the North-Manchurian fight against pestilence, also includes the medical philosophy and ideology of a modern non-Communist physician, and thus, it can serve as a manuductory work for young physicians with little or no experience. Dr. WU was one of the 18 medical leaders who in the thirties (about 1929) had been decisive in the abolition of the native Chinese practice throughout the land. His life is, indeed, a piece of South-Asian and East Asian history.

Due to such men as Dr. WU, *plague* is nowadays a very *rare disease in the world.* In the year 1958, only 213 cases came to the notice of the World Health Organization. The last larger epidemic occurred in 1951 in India and elsewhere in Asia. Last year, 25 cases were observed in the Belgian Congo and Kenya, 21 cases in Madagascar, etc. In America, active foci were described in Ecuador, Peru and in the Brazilian state of Bahia. Asia reported a number of cases, and a new area of endemic plague was detected in the Kurdistan area of Iran.

Dr. WU's China is no longer the same, and we wonder whether the present *military surgeon of China* could still keep the legacy of Hippocrates; whether his highest law is still the health of the sick and the wounded. Perhaps, the ancient principles of medical ethics were swept away in all Communist countries where the doctor is now required to be the executioner of the laws and regulations. According to information reaching the West, all China is turning into a *massive Army* which is still under the instruction of

Soviet teachers who are spread in the various garrisons of the country. The political instruction of the Chinese at the officers' schools and at the Army units is also delivered by Soviet Army officers. In 1955, China introduced the universal military training. Since then, almost half a million men have been drafted yearly. The *duration of military service* is three years in the infantry, four years with the air forces, and five years in the Navy. On paper, the organization of the Chinese Armed Forces includes 200 Army divisions, each of 10,000 men, i.e., a total strength of two million land fighters. Practically, the division may be weaker so that a corps, which consists of three divisions, has hardly a total of 20,000 men. The armament is partly Soviet, partly Japanese, partly American in origin. The high command has been looking for a long time for a standardization of the armament.

What about *tactical atomic weapons?* It seems that the Kremlin refused to release its control of the atomic weapon. The trained reserve of the Chinese Army is estimated at six million. In addition to this, the provinces have at their disposal militias, with men trained in groups and teams *according to industrial plants*. Their number is about ten million. The air force of Red China may possess 2,500 Soviet MIG-17, which is the most modern aircraft of Mao's striking forces. The Chinese Navy has the heavy cruiser "Kaganovich," and destroyers of the older Soviet type. All in all, according to Navy experts, the Navy of Red China is "unimportant." The *strength of Mao* is in his soldiers' supernatural toughness, indefatigability and cunning, and in China's almost inexhaustible reservoir of manpower. The large number of illiterates in the Army makes training very difficult in the handling of complicated weapons. We wonder whether Peking's effort at replacing the 40,000 ideograms of the Chinese traditional writing with about 32 letters has ultimately a military purpose, with complete neglect of the unique position of the Chinese culture.

The existence of *epidemic hemorrhagic fever* in several Far Eastern countries has been known for some time. Manchuria is one of its main foci. It has been described also in the Russian Far Eastern Siberia and in Korea. Now, we have reports that the disease is also found in China. In the forests and villages of *Kirin Province*, a number of people became infected with the virus of the infection, mostly in the late fall. Cases were observed between April 1955 and October 1956. The symptoms of the Chinese outbreak of E.H.F. were the same described in previous medical literature.

A German communist (M. Muschter) who spent two years and a half in *North Korea* and participated in the reconstruction of the destroyed town of Hamhung and Hungnam described his observations about the health of North Koreans. He found that there were very few climatic factors that could influence human health in North Korea. The high temperature in the summer, and the great humidity of the air are, of course, extra burdens upon the circulation. There are some very rough winds coming from Siberia which may cause irritation of the upper respiratory tract. Hence, slight degrees of sinusitis are rather frequent. The material of large hospitals and autopsy rooms is about the same in North Korea as in Germany. Yet, a number of ailments common in Europe are infrequent in North Korea. Weakness of the connective tissues, inguinal hernias and hemorrhoids are rare. People with flat feet or with varicose veins are rarely seen. Arteriosclerosis is almost unknown. The German doctor has not seen a single attack of coronary embolism or thrombosis during his stay in North Korea. No doubt this is the result of different living conditions, different habits and diets.

In North Korea, *rheumatic diseases* are also infrequent, which the German doctor ascribes to the "ondol" (floor) heating, and the custom of walking floors without shoes on the pleasantly warm floors. The general habit of women to bear everything *on the top of their head* provides for their excellent posture. Genital diseases of descent or prolapse of the uterus are also less frequent in North Korea than in Germany.

It is also striking that the forms of *neurasthenia* and the syndrome of vegetative imbalance are absent. Osteo- and spondylarthritis (or arthrosis) are very infrequent. On the other hand, *acute* rheumatic fever is seen often, though it has a usually slight threat to later health.

Gastritis and peptic ulcer are also more frequent, and especially frequent are the types of *gastroenteritis. In North Korea* the habitual foods are all very spicy, made especially with paprika. The incidence of tumors is about the same as in Europe, perhaps with a slight increase in primary hepatic cancers and liver cirrhosis. Reticulosarcomas are also relatively frequent, some of them with rather unusual localization: e.g., in the vertebrae, the colon, the mediastinum. General *hemorrhagic diathesis* is often seen. In the post-war years, protein levels of 5% were often found in the blood. Purulent complications of wounds and diseases are very frequent such as lung abscess, pertitonitis, gangrenous appendicitis, etc.

Hypertension is rarely seen. Nephrosis and nephritis also run without a secondary hypertension. Europeans who came to North Korea have usually shown a lowering of the blood pressure, though sometimes the reverse could be observed. For instance, among the 350 Germans who were in Korea for three years the blood pressure values were as follows: in 65% the values were definitely lower; in 20% they were distinctly higher. In 15 of them the blood pressure was unchanged. Those with the higher pressures were mainly of older age groups. A fifty-year old hypertonic patient who arrived in Korea with a pressure of 200/100 had to return because his pressure went up to 275/165.

Among the *blood diseases,* pernicious anemia does not occur at all. Megaloplastic anemias occur in ankylostomosis, and often in sprue, and in cases of pellagra. Acute leukemias are rare, mostly seen in young men. In cases of the frequent liver abscesses, the anamnesis may reveal an amebic dysentery several years back. A large portion of the bronchopneumonias and pneumonias end in lung abscess which usually yields a streptococcic flora. Such cases are easily treated with penicillin, especially with the intrabronchial administration of the antibiotic.

The German doctor, of course, was much interested in the so-called *Kaschin-Beck disease,* a type of endemic musculo-skeletal ailment in Far Eastern countries, marked with arthritic pains, atrophy of the muscles, contractions of the fingers and toes. It is of obscure origin. Some people ascribe it to *alimentary toxicosis* (mycosis of the wheat and cereals). Trachoma is not dangerous any more. *Japanese encephalitis* is an important ailment here as anywhere else in Eastern Asia. It develops late in the summer, especially in September. Mosquitoes have been blamed for transmission. The mortality may reach 60%. But the most important public health problem in North Korea is pulmonary *tuberculosis.* Malaria is declining. Among the parasitic diseases a specialty of Korea is the *Lingula mansoni,* a worm which penetrates the muscles. Leprosy is still vagrant. Out of 2,000 lepers, 500 are in special leprosariums at Hamhung. Most of them receive an ambulant treatment. Before the Korean War, they were isolated on an island in the Japanese Sea (at Sorok). But the guiding principle of the care of lepers is no more the isolation.

Venereal diseases, rampant during the Korean War, have now strongly receded. In a series of 10,000 workers in North Korea, the Wassermann Reaction was positive in 0.98% only. The figures are somewhat higher for gonorrhea. During the Japanese rule, the natives were not encouraged to enter the medical career. Most *doctors* were from *Japan.* Thus, when the Japanese left, North Korea was practically without physicians. This made it important that other communist countries send doctors who came practically from all satellite countries. Now, there are three medical academies, which have a total attendance of 5,000 *students of medicine.* While before the war the doctor/patient ratio was about 1:10,000, for 1961 it has been

planned that it will reach 1:1000. The medical academies are in Phönjang, Hamhung, and Chondzhin. Each school has four faculties: medical, hygienical, pharmaceutical, and general, all together with 54 chairs. There is also a system of *feldschers* who must pass through a special school of 6 semesters.

In February 1955, the *Korean Red Cross* was again reestablished. Hospitals are being built, and it is expected that, by the end of 1981, there will be 10.3 hospital beds for every 1,000 inhabitants of North Korea.

Medical education in Japan was recently described by a professor at Keio University (Kusama). At the end of World War II, the status of medical education was in a lamentable condition in Japan. There were 69 medical schools, only 18 of them of high standard. There were many students but, owing to the war needs, the 4-year medical course was shortened to 3½ years. A council, organized in 1946, was established to draw up broad principles for medical training. This council re-established the 4-year course, with a minimum of two years of additional preparation. The former 51 low-grade schools were closed for new students, or stopped entirely, or raised to higher level. Rotating internship was introduced, and national examinations were required. There are now 42 first class medical schools in Japan, some of which are private institutions. A student must pass an entrance examination. It is expected that the schools will graduate a total of 3,000 young doctors. Today, Japan has 85,000 physicians, or 1 to 1,000 inhabitants.

At the *Georgetown University World Conference on Live Polio Virus Vaccine*, representatives of 17 nations showed their enthusiasm for oral immunization against the polio infection. As mentioned earlier on these pages, oral vaccination against a number of diseases has been used in the Soviet Union, and the oral vaccine against polio, developed and perfected by the Americans Sabin, Koprowski, and Cox and manufactured by some American pharmaceutical companies, has been tried wholesale in South American and European countries. In such small countries as Uruguay and Costa Rica, the oral immunization has been carried out on a very large scale. Everything points to an early ultimate success. (For such field trials only such countries and natives are suitable as found in the Latin Americas where the population has a large reservoir of unimmunized individuals.)

Nowadays, one may think that *anatomy is a non-progressive science*. Once a gland or a duct has been described there is not much more to do than to watch for the discovery of another gland and duct and to write a few protesting articles if some new-comer attempts to use a sacrosanct old term to designate the new structure. Indeed, though this slander on anatomy is not entirely true, much of the fight among anatomists was related to the *terminology of anatomy*. Since the basic conference on anatomical nomenclature, that was held in 1895 in Basel, many other conferences met with the purpose of revising the older names for the sake of clarity. The latest terminological conference of anatomists was held in Paris in July 1955, for which a working paper had been prepared. This paper was reprinted in 1956 by an American press under the title *"Nomina Anatomica"* (Balt. 51p.) We may find with sorrow that some of our pet anatomical terms have been discarded in the shift (e.g., among the carpal bones the "multangulum maius" and "multangulum minus" are now called "os trapezium" and "os trapezoideum").

Foreign terminology may always cause some trouble. Several years ago, when the *Netherlands* were inundated by floods, the neighboring countries rushed to their help by sending many things which were needed, among others also such important therapeutic substances as human blood and human plasma. But, the Hollanders found that they could not use the gift of blood. The boxes were labelled so that the terms were not understood by the Dutch doctors. . . . *Multa paucis!*

NOTES

Timely items of general interest are accepted for these columns. Deadline is 1st of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—Hon. Frank B. Berry, M.D.

Deputy Ass't Sec'y—Hon. Edw. H. Cushing, M.D.

DIRECTOR AFIP RETIRES

Captain William M. Silliphant, Medical Corps, U. S. Navy, who was director of the Armed Forces Institute of Pathology from August 1, 1955, until August 1, 1959, retired from active naval service on September 1.

Doctor Silliphant was commissioned in the Medical Corps of the Navy in 1930 following his graduation from Stanford University School of Medicine. Early in his career he became interested in pathology and studied in that specialty. His assignments were made accordingly.

While on duty at the Naval Hospital, Canacao, Philippine Islands in 1942, he was captured by the Japanese and interned for 37 months. He served as Sanitation Officer and Laboratory Officer at Bilibid Prison. Deprived of supplies and materials with which to work he claims the distinction of probably being the only pathologist ever to have run a laboratory without the aid of a microscope, or to have resorted to burying vaccine in the ground in lieu of refrigeration.

After liberation he was reassigned to duties pertaining to his specialty and in 1952 became the Navy Deputy Director of the Armed Forces Institute of Pathology, later its Director. In the spring of 1953 he volunteered as a pathologist on a wound ballistics research team in the Far East for wound surgery studies on Korean casualties with particular reference to the influence of body armor. He was engaged in this study at the time of the Korean Armistice.

Doctor Silliphant will join the staff of the Cancer Research Institute and the Department of Pathology of the University of California Medical Center in San Francisco.

NEW DIRECTOR AFIP

Colonel Frank M. Townsend, USAF (MC), was appointed Director Armed Forces Institute of Pathology on August 1. He is the first Air Force officer to assume the Directorship of the Institute. He has been Air Force Deputy Director since 1955.

The directorship of this internationally known institute of pathology rotates through the three services, Army, Navy, and Air Force. The tour of duty normally is four years.

The Armed Forces Institute of Pathology is the central laboratory of pathology for the Department of Defense. In addition to serving the Armed Services, the Institute meets the needs of the Public Health Service, the Atomic Energy Commission, Veterans Administration, other federal agencies and civilian pathologists in the form of consultative service.

Doctor Townsend, a native of Gonzales County, Texas, is a graduate of Tulane University School of Medicine (1938). He immediately manifested an interest in pathology and has studied intensively in that field. His many assignments in the military service, which he joined in 1940, have been related to laboratory and pathology duties.

He has been on the faculties of Washing-

U. S. Air Force Photo

COL. FRANK M. TOWNSEND, USAF (MC)

ton University, University of Nebraska, and University of Texas medical schools.

In 1950, Doctor Townsend returned to military service with the Air Force and after graduation from the School of Aviation Medicine established the first Air Force histopathology center at Lackland Air Force Base, San Antonio, Texas. He is a pioneer in Aviation Pathology.

Colonel Townsend is chairman of the Scientific Program Committee for the 66th Annual Convention of the Association of Military Surgeons. He is a Fellow in The American College of Physicians, American Society of Clinical Pathologists, College of American Pathologists, and American Medical Association. His memberships include the Joint Committee on Aviation Pathology, International Academy of Pathologists, Aerospace Medical Association, Association of Military Surgeons of the United States, Washington Society of Pathologists, Texas Medical Association of Pathology and Biology, American Society of Experimental Pathology, American Rocket Society, Flight Safety Foundation, and Armed Forces—NRS Committee on Bio-Astronautics.

Army

Surgeon General—MAJ. GEN. LEONARD D. HEATON

Deputy Surg. Gen.—BRIG. GEN. THOMAS J. HARTFORD

GENERAL HAYS RETIRES

Major General Silas B. Hays, whose term of office as Surgeon General of the Army terminated on May 31 of this year, retired from the Army on August 1.

General Hays, a native of Minnesota, entered the Army Medical Corps following his graduation from the University of Iowa Medical School in 1928. He was Deputy Surgeon General of the Army from 1951 to 1955 when he was appointed to be Surgeon General.

He has accepted the position of Director, Eastern Area, American National Red Cross, the Headquarters of which is in Alexandria, Virginia.

ASSIGNMENTS IN SGO

Colonel James T. McGibony, MC, has been appointed Chief of the Medical Plans and Operations Division, Office of the Surgeon General. He succeeds Colonel Angel A. Cardona, MC, now Surgeon of the Military District of Washington.

Colonel McGibony received his Bachelor and Master of Science degrees and his M.D. degree from Emory University in Atlanta. He holds a Master of Public Health degree from Johns Hopkins University. He attended the Industrial College of the Armed Forces 1958-1959 course at Fort Lesley J. McNair, Washington, D.C.

Colonel McGibony is not a newcomer to the Division to which he is now assigned as chief, as he has had three previous assignments in that division. Furthermore, his broad experience with hospitals, at least three of which he was Commanding Officer during their construction (Tripler, Dewitt,

and Okinawa) makes him well qualified for his present assignment. He was the first Army Fellow, American College of Hospital Administrators, and is a Board Diplomate in Preventive Medicine.

Colonel James B. Stapleton, MC, has been assigned as Chief of the Personnel and Training Division, Office of the Surgeon General. He succeeds Colonel Byron L. Steger who has been assigned as Commanding Officer, Womack Army Hospital, Fort Bragg, North Carolina.

Colonel Stapleton, a graduate of Tulane University School of Medicine (1932), holds a Master of Arts degree in Hospital Administration from Northwestern University. During World War II he was in the Battle of Okinawa and in the Philippines, and during the Korean Conflict he was Commanding Officer of Army hospitals in Japan. Prior to coming to the Surgeon General's Office he was Hospital Commander and Professor of Military Hygiene at the U. S. Military Academy.

Colonel Dale L. Thompson, MSC, has been assigned to the Office of the Surgeon General as Assistant Chief, Medical Service Corps and Executive Officer of the Personnel and Training Division.

Lt. Colonel Jesse W. Brumfield, MSC, has been appointed Administrative Assistant to the Chief of the Medical Service Corps, Office of the Surgeon General. His prior assignment had been Executive Officer, Forest Glen Section, Walter Reed Army Medical Center.

Lt. Colonel Jon P. Evans, MC, has been assigned Chief of the Medical Intelligence Division, Office of the Surgeon General. Before coming to his present assignment he was Assistant Military Attache with the U. S. Embassy, New Delhi, India. From 1951-53 he served with the Army Mission to Iran.

Lt. Colonel Richard L. Howard, DC, has been assigned to the Dental Division, Office of the Surgeon General. He is a graduate of the University of California College of Dentistry (1945). During the Korean Conflict he served with the Eighth Army and later was assigned to Tokyo, Japan. He is a graduate of the Army Language School and the Command and General Staff College.

Lt. Colonel William W. Southard, Jr., MSC, has been assigned to the Supply Division, Office of the Surgeon General. His previous assignment was Comptroller, Louisville Medical Depot. He received his Bachelor of Arts degree from the University of California prior to entering the Army in 1941. On 1948 he received his Master of Arts degree in Business Administration from Harvard University. During World War II he served in the European Theater.

Lt. Colonel Colin F. Vorder Bruegge, MC, has been appointed Chief of the Research Division in the U. S. Army Medical Research and Development Command, Office of the Surgeon General. He is best known for his work in the planning of the new building for the Armed Forces Institute of Pathology at Walter Reed Army Medical Center.

Major Robert W. Tate, MSC, has been assigned to the Personnel and Training Division, Office of the Surgeon General. During World War II, he served as Adjutant of the 172nd General Hospital in the China-Burma-India Theater at the time of the historic opening of the Burma Road. Prior to his present assignment, Major Tate was Chief of the Military Personnel Branch at the Brooke Army Medical Center.

Major Fernando G. Torgeson, MSC, has been assigned to the Professional Division, Office of the Surgeon General, as Social Service Consultant. He received his Ph.D. in Social Work in 1956 from the University of Minnesota.

NEW CHIEF NURSE

Colonel Margaret Harper became the new Chief of the Army Nurse Corps on September 1 when she succeeded Colonel Inez Haynes who retired to become Director of the National League of Nursing.

Colonel Harper who had been Assistant Chief of the Army Nurse Corps since 1955 is a native of Potomac, Illinois. She is a graduate of the Evanston General Hospital School of Nursing, Northwestern University (1934). Before entering the Army Nurse Corps she was Assistant to the Superintendent of Nurses at the Chicago Memorial Hospital, Chicago, and Murry Hospital, Butte, Montana.

She was commissioned as a Second Lieutenant in the Army Nurse Corps in April 1941 and sent to Australia as Chief Nurse of the 155th Station Hospital, later serving in New Guinea as Base Chief Nurse. In 1944 she served a brief time in the United States before being transferred to Europe where she served until June 1946. At that time she returned to the States and enrolled in Teachers College, Columbia University from which she received a B.S. degree in Nursing Education in August 1947. Later she was assigned to the Army Medical School, Fort Sam Houston, Texas, to prepare extension courses for the Army Nurse Corps officers in the Reserves.

Colonel Harper also holds a Master of Arts degree in Personnel Counselling and in Nursing Service Guidance from Columbia University (1953). She has been awarded the Bronze Star Medal and the Army Commendation Ribbon.

COLONEL AABEL REASSIGNED

Colonel Bernard Aabel, former Chief of the Medical Service Corps of the Army, which tour he completed on July 1, has been reassigned to the Washington D.C. area. He will continue to live at his address: 1311 Fern St., N.W., Washington 12, D.C.

SURGEON IN JAPAN

Colonel Louis S. Leland was recently appointed Surgeon, U. S. Army Japan, and Commanding Officer, U. S. Army Medical Command, Japan. He succeeded Colonel Charles H. Moseley who was reassigned to the Army Medical Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

PROMOTED

Colonel Frank A. Partlow, MSC, was promoted to that rank recently. He has served as chief of the Officer Procurement Branch, Personnel Division, Office of the Surgeon General, since 1957. No change of assignment is anticipated.

BECOMES VII CORPS SURGEON

Colonel Raymond E. Duke who just recently completed an assignment at the Brooke Army Medical Center has been assigned in Europe as the VII Corps Surgeon.

During World War II Colonel Duke was Surgeon of the Normandy Base Sector. He was transferred directly from that assignment to the Southwest Pacific. On transfer back to the States in 1946 he became Director of the Education and Training Division in the Office of the Surgeon General. From 1953 to 1956 he was in Japan as Surgeon of the Far East Command and the Eighth Army. He is a graduate of the Command and General Staff College, Armed Forces Staff College, and the School of Aviation Medicine. He has completed work on a Master's degree in Public Health.

BLOOD BANK STUDENT FELLOWSHIPS

At the Walter Reed Army Institute of Research, Walter Reed Army Medical Center, there has been established a Bloodbanking Student Fellowship for training in the technique and problems of blood collection and processing. This will be under the direction of Lt. Colonel Joseph H. Akeroyd.

The first officer to report for this training is Lt. William S. Collins, II, MSC, who holds a Master's Degree in Bacteriology.

ASSIGNMENT BAMC

Colonel William M. Ream has assumed his duties as Commanding Officer of the Central Dental Laboratory at Brooke Army Medical Center. Colonel Ream was in Hawaii at the

time of the Japanese attack on December 7, 1941, and remained there for the first two years of the war.

CLINICAL CLERKSHIP PROGRAM

The Army Clinical Clerkship program provides junior and senior medical students training in its teaching hospitals for a period of four weeks during the summer months. While serving the U. S. Army Reservists attending the course are placed in active duty status, while the others are given temporary civil service appointments. During the month of July there were 26 medical students in training at the Walter Reed Army Hospital.

COURSES FOR MEDICAL SERVICE OFFICERS

The Army will offer professional postgraduate short courses for Army Medical Service officers at military hospital and medical centers during Fiscal Year 1960.

An *Advanced Orientation Course on Medical Aspects of Chemical Warfare* to be given at the Army Chemical Center, Edgewater, Md., and *Occupation Medicine,* offered at the U. S. Environmental Health Laboratory in Edgewood, are among the new offerings.

Courses are open to active and Reserve medical service officers, National Guard medical service officers not on active duty, full time civil service physicians at Army installations, and some civilian medical personnel.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADM. EDWARD C. KENNEY

SELECTED FOR REAR ADMIRAL

Three Medical Corps Captains were selected for promotion to the rank of Rear Admiral by President Eisenhower: Captain James L. Holland, who is assigned on the Staff of the Commander, Naval Air, Pacific; Captain Cecil L. Andrews, Commanding Officer of the U. S. Naval Hospital, St. Albans, N.Y., and Captain Cecil D. Riggs, Commanding Officer of the U. S. Naval Hospital, Chelsea, Mass. They will receive their appointments to flag rank as vacancies occur.

ASSIGNMENTS TO BUMED

Captain Merrill H. Goodwin, MC, has been assigned to the Bureau of Medicine and Surgery as Deputy Director, Aviation Medicine Operations Division.

Captain G. C. Rader, DC, has been assigned as Head, Planning and Analysis Branch, Dental Division, Bureau of Medicine and Surgery. Prior to this assignment he was assistant head of that branch.

Captain Sidney L. Arje, MC, was recently assigned as Head, Planning and Special Projects Section, Medical Corps Branch.

Lieutenant (junior grade) Earl R. Nourigat, MSC, was recently assigned as Head, Training Administrative Section, Training Branch.

Captain Clifford P. Phoebus, MC, has been assigned as Director, Astronautical Division.

Lieutenant Commander Robert E. Ricker, MSC, has been assigned as Executive Assistant to the Inspector General, Dental Division.

Captain Robert S. Snyder, Jr., Dental Corps, was recently assigned as Inspector General, Dental, Bureau of Medicine and Surgery.

Captain M. L. Parker, DC, has been assigned as Head, Standard and Training Section, Dental Division, Bureau of Medicine and Surgery.

RETIRED

Captain Robert W. Babione, MC, recently retired from the Naval Service, had been Executive Secretary of the Armed Forces Epidemiological Board which advises the services on research in military preventive medicine. He was commissioned in the Medical Corps of the Navy after his graduation in 1930. During World War II Captain

Babione served on the staff of Commander Service Force, U. S. Pacific Fleet.

Captain C. M. Fraleigh, DC, recently retired from active naval service with the rank of Rear Admiral after more than twenty years active duty. He was a Japanese Prisoner of War from April 1942 until 1945. He has accepted a position on the staff of the dental school at the University of West Virginia.

Captain Francis W. Lepeska, DC, retired in July after almost 35 years of active service.

Captain Arthur R. Logan, DC, recently retired after more than thirty-four years service. He graduated from the School of Dentistry, Creighton University, Nebraska, in 1925, and was commissioned as a First Lieutenant in the Army Dental Corps. After three years he transferred to the Dental Corps of the Navy.

Captain Hector J. A. MacInnis, DC, retired after 32 years of active duty. He first saw active military duty as a volunteer ambulance driver for the French during World War I. For "Conspicuous Gallantry in Action" during this period, he was awarded the Croix de Guerre and the French Medal of Honor. He entered on active naval duty in June 1927. Captain MacInnis will reside in Annapolis, Maryland.

Captain Arthur Siegel, DC, has retired after more than thirty-two years of active naval service. He is a graduate of the Dental School of the University of Maryland (1925).

The following Medical Service Corps officers were placed on the retired list of officers of the Navy on August 1, 1959: Commanders Dean Farnsworth, Albert Olson, and Thomas E. Shea, Jr.

ANNUAL SYMPOSIUM

The Tenth Annual Military Medico-Dental Symposium will be held at the U. S. Naval Hospital, Philadelphia, Pa., October 28-30, 1959. Everyone is invited. Credit points for retirement for Reserve officers will be granted.

The Nursing Division will present: "Nursing Care of Mass Casualties" by Major Dolores L. Gunsukey, ANC; and "Nuclear Nursing" by Commander Mary Grimes, NC, USN.

Air Force

Surgeon General—MAJ. GEN. OLIVER K. NIESS

Deputy Surg. Gen.—BRIG. GEN. JOHN K. CULLEN

NAMED CHIEF PREVENTIVE MEDICINE

Lt. Colonel Gordon F. Fisher, USAF (MC), recently became Chief of the Preventive Medicine Division, Office of the Surgeon General, U. S. Air Force. He replaced Colonel George K. Fair, who has been assigned as medical member of the Physical Evaluation Board at Andrews Air Force Base, Washington, D.C.

Doctor Fisher received his medical degree from Northwestern University in 1934 and his M.P.H. degree from Johns Hopkins University in 1952. During World War II he served with the Army Medical Corps. In 1949 he joined the Medical Service of the Air Force.

NEW ACADEMIC BUILDING

The School of Aviation Medicine held a ribbon-cutting ceremony opening its new Academic Building at Brooks Air Force Base, Texas on August 3. That day marked the official move from Randolph Air Force Base to Brooks Air Force Base for the School's command post. The Commandant of the School is Major General Otis O. Benson, Jr.

RETIRED

Colonel Charles H. Bramlitt, MC, who has been Deputy Director of Professional Services, Office of the Surgeon General, retired on July 31. He has accepted a position with the American Medical Association, Chicago.

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—JOHN D. PORTERFIELD, M.D.

APPOINTMENT

Dr. Richard C. Arnold has been appointed as Assistant Surgeon General for Personnel and Training, Public Health Service. He succeeds Dr. Otis L. Anderson who retired on June 30 and is now associated with the Washington Office of the American Medical Association.

Dr. Arnold is a native of Owenton, Kentucky, and a graduate of the University of Louisville School of Medicine (1930). He has spent his entire professional career in the Public Health Service. For the past three years he has been Chief of the Heart Disease Control Program in the Bureau of State Services.

CIVIL AIR SURGEON

Medical Director James L. Goddard has been appointed Civil Air Surgeon in the Federal Aviation Agency which is headed by General E. R. Quesada.

Doctor Goddard is a graduate of the George Washington University School of Medicine (1949). He has taken advanced work in public health at Harvard University. While retaining his commission in the Public Health Service he will be on loan to the Federal Aviation Agency.

EXAMINATION FOR PHS

Competitive examinations will be held for physicians and occupational therapists for positions in the Regular Corps, U. S. Public Health Service, on November 17, 18, 19, and 20, 1959. These examinations will be held in various parts of the country.

Completed application forms must be on file no later than October 9. For further information write to the Surgeon General, U. S. Public Health Service (P), Washington 25, D.C.

SUMMER DUTY WITH COMMISSIONED RESERVE

One hundred medical, dental, engineering, science, nurse and veterinary students from 53 four-year professional schools were on duty the past few months under the Commissioned Officer Student Training and Extern Program (COSTEP).

Assignments under this program are open each year to medical, dental, engineering, science, nurse and veterinary students who complete their second or third year of professional education on or before July 1 and who are interested in becoming Reserve Officers in the U. S. Public Health Service's Commissioned Corps.

Opportunities for either medical or dental internships or active duty upon graduation are also available to qualified students.

Students interested in these programs should apply to the U. S. Public Health Service, Washington, D.C.

RETIRED

The following Commissioned Officers of the Public Health Service have been retired: Medical Directors William H. Gordon, Harold D. Lyman, and Leo W. Tucker; and Assistant Sanitarian Hubert M. Jamison.

FALLOUT

The Public Health Service is continuously studying the problem of fallout of radioactive materials by sampling water supplies and milk supplies.

The highest level of Strontium 90 found in water collected at 48 sampling stations during the first three months of this year was 4.7 micromicrocuries—or 4.7 millionths of a millionth of a curie—per liter.

Secretary of Health, Education, and Welfare, Arthur S. Flemming, said, "The importance of this long-range study can hardly be overemphasized. As the population of the Nation increases, as industry expands and

changes, good water will be at more and more of a premium. It will become increasingly important as time goes on not only to know what is in the water of any given stream at any given time but to know what the pollution trends are so that corrective actions can be taken when they will be most effective and least costly."

Milk samples from the St. Louis Area showed a strontium 90 count of 37.3 micromicrocuries per liter during the month of April. While this is below the maximum permissible level of 80 micromicrocuries for a life-time exposure for the general population set by the National Committee on Radiation Protection and Measurements, this is the highest recorded for the two-year period in St. Louis.

The reason for the consistently higher levels which have prevailed in St. Louis over the two-year period has not clearly been determined, according to the Public Health Service. The location of weapons testing sites in relation to the meteorological pattern of winds and rain in the area, however, is believed by some scientists to be a principal factor.

BOOKLET AVAILABLE

Disability Days, U. S. July 1957-June 1958 (PHS Publ. No. 584-B10) is a 68-page Health Statistics book which gives much information about time lost for disease and injury among the civilian population of the United States for the period mentioned.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at 40¢ per copy.

RESEARCH METHODS AND INSTRUMENTATION

The Ninth Annual Instrument Symposium and Research Equipment Exhibit, sponsored by nationally known research equipment manufacturers and the Washington sections of six scientific societies, will be held September 28 through October 1 at the National Institutes of Health, Bethesda, Maryland.

Professional and technical persons are invited to view the exhibits and to attend the symposium. There will be a display of equipment valued at more than $800,000.

Further information may be obtained from the Executive Secretary, James B. Davis, National Institutes of Health, Bethesda 14, Maryland.

BIBLIOGRAPHY ON ENCEPHALITIS

Free copies of a bibliography on *Arthropod-borne Encephalitis* may be obtained from the National Library of Medicine (Acquisition Division), 7th St., and Independence Ave., S.W., Washington 25, D.C.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.

Deputy Chief Med. Dir.—R. A. WOLFORD, M.D.

APPOINTMENTS

Dr. Frederick J. Rachiele, has been appointed manager of the Veterans Administration Hospital at Tucson, Arizona. He succeeds Philip L. Collins who retired May 31. During World War II Dr. Rachiele, a graduate of the University of Colorado School of Medicine (1942), served with the Medical Corps of the Army.

VETERANS POPULATION

At end of June the veterans population was estimated as follows: veterans in civil life—22,666,000 (World War I—2,787,000; World War II—15,243,000; others—4,636,000).

PITUITARY FUNCTION TEST

A chemical test said to measure the function of the anterior pituitary has been devised by a research team from the Veterans Administration Hospital, Buffalo, New York, and the University of Buffalo.

Using chemical, "SU 4885," the "brake"

PSORIASIS

◀ *distressing*
to the patient

◀ *perplexing*
to the doctor

RIASOL®

clinically tested ▶

ethically promoted ▶

safe and effective ▶

easy to use ▶

maximum assurance ▶
against recurrence and adverse reactions

WRITE for PROFESSIONAL SAMPLE and LITERATURE

AVAILABLE
at pharmacies or direct
in 4 and 8 fluid ounces

COMPOSITION
RIASOL contains 0.45% Mercury chemically combined with soaps, 0.5% Phenol, 0.75% Cresol.

SHIELD LABORATORIES
Dept. M-959
12850 Mansfield Avenue • Detroit 27, Michigan

on the adrenal cortex normally placed by the pituitary was released and the stimulated adrenal produced larger amounts of Compound S, deoxyhydrocortisone. It was the Compound S that was measured to determine the activity of the anterior pituitary, there being no Compound S when that portion of the pituitary was not functioning, and from this zero point there were graded amounts of Compound S depending on the activity of the pituitary gland.

The team was composed of Drs. Grosvenor W. Bissell, Alvin L. Scott, Wells E. Farnsworth, and technologists Isabelle Winkler.

TRAINING IN PHARMACY

Training opportunities in hospital pharmacy will be extended in the Veterans Administration hospitals for this fiscal year.

One-year internships will allow pharmacy students to get specialized training in hospital pharmacy and at the same time gain experience required for state board licensure. Salaries will be from $4,040 to $5,390. Applicants may apply to any Veterans Administration hospital.

VETERANS NOTE

July 25, 1960 is the cut-off for applications for GI home, farm or business loan for World War II veterans. Korean veterans have until January 31, 1965.

Miscellaneous

ARTIFICIAL RESPIRATION

"Mouth-to-mouth" breathing as a technique of artificial respiration has been adopted by The American National Red Cross. A supplement on this subject has been prepared for the Red Cross First Aid Textbook. Here are the steps in "Mouth-to-Mouth" artificial respiration:

1. Tilt the head back so the chin is pointing upward. Pull or push the jaw into a jutting-out position. These maneuvers should relieve obstruction of the airway by moving the base of the tongue away from the back of the throat.

2. Open your mouth wide and place it tightly over the victim's mouth. At the same time pinch the victim's nostrils shut or close the nostrils with your cheek. Or close the victim's mouth and place your mouth over the nose. Blow into the victim's mouth or nose. (Air may be blown through the victim's teeth, even though they may be clenched.)

3. Remove your mouth, turn your head to the side, and listen for the return rush of air that indicates air exchange. Repeat the blowing effort. For an adult, blow vigorously at the rate of 12 breaths per minute. For a child, take relatively shallow breaths appropriate for the child's size, at the rate of about 20 per minute.

4. If you are not getting air exchange, recheck the head and jaw position. If you still do not get air exchange, quickly turn the victim on his side and administer several sharp blows between the shoulder blades in the hope of dislodging foreign matter.

SURPLUS PROPERTY

Schools, hospitals, and defense agencies may profit by looking into the availability of Federal surplus property. This is, of course, for their own use and not for resale.

The General Services Administrator, the Department of Defense, and the Department of Health, Education, and Welfare are working together on a plan which will not only increase the use of this surplus property but will speed up the disposal of it to those who can use it and are entitled to it.

Interested institutions should contact their State agency which is kept informed by one of the Federal departments on the availability of surplus property.

PEDIATRIC RESIDENCIES

Residency Fellowships in Pediatrics for citizens of the United States and Canada are now being awarded by Wyeth Laboratories. Each year, twenty Fellowships will be awarded to interns and to individuals who have recently completed an internship and desire training in pediatrics. Each residency

in surgical sedation Vesprin

SQUIBB TRIFLUPROMAZINE HYDROCHLORIDE

has made **a significant difference** to thousands of patients. Administered prior to anesthesia, Vesprin alters the patient's basic emotional response to stress[1] and makes the patient "... relaxed, drowsy but easily roused, and cooperative ..."[2]

Vesprin potentiates general anesthetic agents,[1] permits reduced dosages of narcotics and sedatives,[1,2] and postoperatively controls excitement or delirium.[3]

Supply: parenteral solution: 1-cc. multiple-dose vial (20 mg./cc.) and 10-cc. multiple-dose vial (10 mg./cc.) IV. or IM. **Vesprin Injection Unimatic:** (15 mg. in 0.75 cc.) IM.

References: 1. Stone, H. H.: Monographs on Therapy **3**:1 (May) 1958. 2. Davies, J. I., and Hansen, J. M.: Clin. Res. Notes **2**:5 (May) 1959. 3. Stone, H. H.: Clin. Res. Notes **2**:3 (May) 1959.

Vesprin—The tranquilizer that fills a need in every major area of medical practice—anxiety & tension, nausea & vomiting, alcoholism, obstetrics, mental disorders, & pre- & post-operative tranquilization.

SQUIBB Squibb Quality—the Priceless Ingredient

is for two years with a stipend of $2,400 a year.

November 30, 1959 is the closing date for applications for the residency fellowships commencing July 1, 1960. Interested physicians should write to: Philip S. Barba, M.D., University of Pennsylvania, School of Medicine, Philadelphia 4, Pa.

MEETING

The International Congress of Gastroenterology will hold its meeting in Leyden, Netherlands, April 20-24, 1960. Those wishing to submit papers should contact the Secretariat, 16 Lange Voorhout, The Hague, Netherlands. Papers must be submitted by October 1, 1959.

POSTGRADUATE COURSES

New York University-Bellevue Medical Center's Post-Graduate Medical School offers the following courses: *Allergy,* November 30-December 18, 1959; March 21-23, 1960; April 8-June 3, 1960; *Diagnostic Cardiac Auscultation,* October 28-31, 1959; *The Practical Fundamentals of Clinical Electrocardiographic Interpretation,* November 4, 1959-March 16, 1960 (Wednesdays); *Electrocardiography,* November 9-14, 1959. Further information may be obtained from the Associate Dean, 550 First Ave., New York 16, N.Y.

PG COURSES ON CHEST DISEASES

The American College of Chest Diseases will present the following Postgraduate Courses: *Clinical Cardiopulmonary Physiology,* Chicago, October 5-9; *Diseases of the Chest,* New York, November 9-13, *Diseases of the Chest,* Los Angeles, December 7-11. Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut St., Chicago 11, Ill.

AIR POLLUTION COURSE

An intensive two-week course, "Air Pollution," will be offered by the New York University Post-Graduate Medical School from November 30 through December 11, 1959. More information may be obtained from: The Associate Dean, 550 First Ave., New York 16, N.Y.

REPORTS AVAILABLE

The following reports may be obtained from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D.C., at price stated:

Strontium Program: Quarterly Summary Report; New York Operations Office (HASL-55); 10 p., $2.50.

Research and Development Activities in the Field of Radiological Sciences: Quarterly Progress Report for Period Oct.-Dec. 1958, (HW58833) 30 p., $1.25.

AEC Atmospheric Radioactivity Studies (WASH-1016), 37 pp., 50¢.

Effects of pH and Anoxia on the Cell Morphology and Radiation Sensitivity of Escherichia Coli (Thesis) (URCL-8668) 55 p., $1.50.

Effect of Fallout Contamination on Processed Foods, Containers, and Packaging (WT-1496) 19 p., 75¢.

Fallout Control (SRIA-3), 184 p., $3.50.

Radioactive Fallout: A Literature Search (TID-3528), $1.00.

A Review of Information on the Gamma Energy Radiation Rate from Fission Products, and its Significance for Studies of Radioactive Fallout (TID-5557), 13 p., 50¢.

Soil and Plant Relationships of Fission Products (TID-5558), 8 p., 50¢.

Tertiary Effects of Blast-Displacement (WT-1469) 37 p., $1.00.

Health Physics for Radioisotopes Laboratory (PB131196), 35 pp., $1.00.

NOMENCLATURE HANDBOOK

The *Handbook on Standard Nomenclature of Diseases and Operations* is a pocket-size (4⅜ × 6⅜) booklet containing 71 pages published by McGraw-Hill Book Company, Inc., New York, for the American Medical Association; price $1.50.

This little book is edited by Edward T. Thompson, M.D., Editor, Standard Nomen-

clature of Diseases and Operations with the assistance of Adaline C. Hayden, C.R.L., as Associate Editor. This is just what it says—a handbook.

It is not a complete list of terminology. About 26 pages are devoted to terms to be avoided and correct terms are given. General instructions are given for classification. In the preface it is stated, "In order that physicians, interns, residents, and medical students might have the benefit of authoritative and current terminology on all subjects, it seemed desirable to prepare a handbook on the *Standard Nomenclature of Diseases and Operations.*"

S.1138—EDUCATION BILL

A bill—the "Veterans Readjustment Assistance Act of 1959" (S.1138)—was introduced by Senator Ralph Yarborough of Texas for the purpose of granting certain rights to those persons serving with the Armed Forces since January 31, 1955. On that date the Korean Bill of Rights terminated.

S.1138 would provide a monthly allowance for full time training at the rate of $110 a month for a veteran without dependents, $135 monthly for a veteran with one dependent and $160 for a veteran with more than one dependent. It also provides for vocational rehabilitation training for disabled veterans and a loan guaranty for loans on homes, farms, farm homes and farming equipment and livestock.

The bill was passed by the Senate on July 21, 1959 and has gone to the House for its consideration.

Honor Roll

Since the publication of our last list, the following sponsored one or more applicants for membership in the Association:

Lt. Col. William J. Dann, Jr., MSC, USAR
Med. Dir. John C. Cutler, USPHS
Maj. Edward A. Barrett, MC, USAR
Maj. Paul E. Cevey, MSC, USA
Capt. H. H. Hanna, MC, USA
Maj. Anthony Fazio, MC, USAF
William H. Krieger, Sc. D., F.A.C.M.T.
Joseph A. Mendelson, M.D.
Dr. Bernard J. Plone
Lt. Col. Maude Benedict, ANC
Col. Charles R. Mueller, USA, Ret.
Lt. Cdr. Margaret W. MacKay, NC, USN
Maj. Gen. H. H. Twitchell, USAF (MC)
Clifton L. Dance, M.D.
Philip Pross, M.D.

New Members

Surg. Leo R. Radigan, USPHS
Lt. Arthur M. Merher, USNR (DC)
Capt. William W. Hoffman, USAF-R (MC)
Sr. Asst. Surg. Herman Lewis Smith, USPHS
Capt. Robert K. Larson, USAF-R (DC)
Capt. Max Levine, MSC, USAF-R
Med. Dir. Stanley F. Yolles, USPHS
Capt. A. W. Martin Marion, Jr., USAF-R (MC)
Sr. San. Eng. Ernest P. Dubuque, USPHS
Sr. San. Eng. Karl L. Zander, USPHS-R. (Inact.)
1st. Lt. Marvin Donald Glickman, MSC
Maj. Margaret Elizabeth Peters, USAR
George R. Gray
Capt. Paul J. Hicks, MC, USAF
Joseph Edwin Smadel, M.D.
Dr. Mario Tapia-Cabellero
SA Surg. William C. Brown, USPHS
Col. Joseph B. Morse, VC, USAR
Capt. Romulus L. May, MC, USN
David S. Long, M.D.
Capt. Sally McCracken, ANC, USA
Col. M. I. Marks, USAF-R (MC)
Sr. Dent. Surg. Alfred Popper, USPHS
Maj. Thomas O. Geist, MSC, USAR
Capt. Wanda Mae Matthews, NC, USAF
Lt. Joseph R. Whelan, MC, USNR
Col. Perry C. Bullard, MSC, USAF
Col. William H. Hyde, AUS, Ret.
Med. Dir. William J. Zukel, USPHS
Surg. Len Hughes Andrus, USPHS-R
2nd Lt. Richard S. Locke, MSC, USAR

Capt. Theodore E. Plucinski, USAF (MC)
2nd Lt. Charles K. Cordes, MSC, USAR
Lt. Donald Clinton Wallace, DC, USNR
Med. Dir. Cameron L. Self, USPHS
Lt. Col. Benton D. Mathews, USAF-R (MC)
Asst. Surg. Gen. Theodore J. Bauer, USPHS
Francisco Febles, Jr., M.D.
Thomas Newton Robinson, M.D.
Capt. David Edmund Sullivan, MSC, USA
Lt. Col. Louis Carl Pessolano, USAF-R
NO Cornelia Vistula Lancaster, USPHS
Sr. Surg. John Max Vogel, USPHS
Lt. Col. Letteer G. H. Lewis, USAF-R (MC)
Sr. Asst. Malcolm Dallis Lockhart, USPHS
Col. Henry Leidenheimer, Jr., USAF-R (MC)
S. A. Surg. Joseph Maurice Torruella, USPHS
1st. Lt. John H. Peters, USAF-R (MC)
Sr, Asst. Surg. Chester Z. Haverback, USPHS
Capt. Morton H. Pastor, USAF-R (MC)
Major David A. Levitch, USAF-R (MSC)
Capt. Paul S. Metzger, USAF-R (MC)
Remi A. Trudeau, R.N.
Capt. Bernard Splendlove, MSC, USA
1st. Lt. Dale J. Pennington, MC, USAF
Capt. Andrew I. Moe, USAF-R (DC)
Capt. Robert Kamen, MC, USAR
1st. Lt. Winnifred J. Kopanger, USAF (NC)
Capt. Anthony F. Merlino, Jr., MC, USAF
Maj. S. K. Norman, USAF-R (DC)
Capt. Elmer A. Kestler, USAF-R (DC)

Deaths

JAFFE, Nathan Bernard, M.D., died March 22; age 73. Dr. Jaffe, a native of Russia, was a graduate of the University of Vermont Medical School (1917). He is survived by his wife who lives at 1119 Stratford Ave., Bridgeport 7, Conn.

KELLER, William L., Colonel, Medical Corps, U. S. Army Retired, died at Walter Reed Army Hospital, July 10, following a long illness. His age was 85.

Colonel Keller, a native of Connecticut, received his medical degree from the Medical College of Virginia in 1899. His Federal service began with the U. S. Public Health Service in which he served about six months. He then became a contract surgeon for the Army and in 1902 accepted a commission in the Regular Army Medical Corps.

His intense interest in surgery, his boldness in that field in the early days of this century, his observations of his results, his great personal attention to his patients caused him to rise to fame as one of the great surgeons of the country and one of the greatest of military surgeons of all times. He became known internationally. He entered the field of chest surgery early and developed surgical procedures which saved many lives. He is well known for his modification of the Thomas leg splint and his many contributions to medical literature.

During World War I Colonel Keller was director of professional services with the American Expeditionary Forces. After World War I he was honored with the Distinguished Service Medal.

For many years he was Chief of the Department of Surgery at Walter Reed Army Hospital. He was recommended for general officer rank but his desire to remain in full time active surgery prompted him to decline nomination. In October 1935 he retired from active military service. Congress recognized his ability and his great service to his country and appointed him a life-time consultant in surgery to the hospital he had served so many years.

Colonel Keller is survived by his wife, Sara, 2930 Foxhall Road, NW., Washington, D.C., and a son.

Interment was in Arlington National Cemetery.

LEACH, William Otto, M.D., a veteran

of World War I, died March 8 in Mission Sanitarium, La Crescenta, California; age 82. He was a graduate of the Wisconsin College of Physicians and Surgeons (1908). He had maintained an office at 3305 Honolulu Avenue, La Crescenta, Calif.

STEINDLER, Arthur, Lieutenant Colonel, Medical Corps, Reserve, Retired, died at Iowa City, Iowa, July 21, of cancer; age 81.

Doctor Steindler, an internationally known orthopedist, was a native of Austria. He was educated at the University of Prague and at the University of Vienna from which he received his medical degree in 1902. Following his graduation he came to the United States. In 1920 he was made professor and head of the Department of Orthopedic Surgery of the State University of Iowa. In 1949 he retired from the university with the rank of distinguished service professor-emeritus.

Doctor Steindler was the author of many books and medical articles.

WADHAMS, Sanford H., Colonel, Medical Corps, U. S. Army, Retired, died June 14 at Torrington, Conn., after a short illness; age 85.

Doctor Wadhams, a native of Connecticut, received his medical degree from Yale University in 1896. He became a contract surgeon in the Army in 1898 and in 1900 was commissioned in the Regular Army Medical Corps from which he was retired in 1921 due to physical disability. He served in the Spanish-American War and World War I. From 1917 to 1919, he was a member of the Headquarters staff of General Pershing in France. His principal duty was the overseeing of the hospitalization and evacuation program. For his outstanding service in this position he was awarded the Distinguished Service Medal. On his return to the United States he was assigned to the Army War College in Washington. After his retirement Doctor Wadhams was for a few years dean of the New York Post Graduate Medical School.

He was president of F. L. Wadhams & Son, a Torrington grain business; chairman of the State Water Resources Commission; director of the Institute of Living; and a Life Member of the Association of Military Surgeons, his membership dating from 1904. He had contributed articles to *The Military Surgeon* (the former name of our journal).

He is survived by his brother of Torrington, Connecticut.

NEW BOOKS

Books may be ordered through this association.

A Way of Life and Other Selected Writings, Sir William Osler, Dover Publications, Inc., New York, N.Y. Price $1.50.

The Mouth, Its Clinical Appraisal, A. B. Riffle, D.D.S., J. B. Lippincott Company, Philadelphia, Pa. Price $3.50.

Tropical Sprue—Studies of U. S. Army's Sprue Team in Puerto Rico. Medical Science Publication No. 5. U. S. Government Printing Office, Washington, D.C. Price $1.75.

Diabetic Manual for the Patient, Elliot P. Joslin, M.D., Sc.D., Lea & Febiger, Philadelphia, Pa. Price $3.75.

A Short Textbook of Radiotherapy For Technicians and Students, J. Walter, M.A., B.M. (Oxfd.), M.R.C.P. (Lond.), F.F.R., D.M.R.E. (Camb.) and H. Miller, M.A., Ph.D. (Camb.), F. Inst. P. Price $10.00.

Office Orthopedics, Lewis Cozen, M.D., F.A.C.S., Lea & Febiger, Philadelphia, Pa. Price $9.50.

Cholera, R. Pollitzer, M.D., World Health Organization, Palais des Nations, Geneva, Switzerland. Price $20.00.

Molecules and Mental Health, Edited by Frederic A. Gibbs, M.D. Published for the Brain Research Foundation. J. B. Lippincott Co., Philadelphia 5, Pa. Price $4.75.

An Introduction to Public Health, Harry S. Mustard, J. D., LL.D., Ernest L. Stebbins, M.D., The Macmillan Co., New York, N.Y. Price $4.50.

A Mount Sinai Hospital Monograph on *Systemic Lupus Erythematosus,* Editors George Baehr, M.D., and Paul Klemperer, M.D., Grune & Stratton, New York, N.Y. Price $3.75.

Radiation Therapy, Walter T. Murphy, M.D., W. B. Saunders Co., Philadelphia, Pa. Price $25.00.

Moloy's Evaluation of the Pelvis in Obstetrics, Charles M. Steer, M.D., Med. Sc.D., F.A.C.S., F.A.C.O.G., W. B. Saunders Co., Philadelphia, Pa. Price $4.00.

Applied Anatomy for Nurses, E. J. Bocock, S.R.N., S.C.M., D.N. and R. Wheeler Haines, M.B., D.Sc., F.L.S., Williams & Wilkins Co., Baltimore, Md. Price $4.25.

Practitioners' Conferences held at New York Hospital-Cornell Medical Center, Edited by William J. Grace, M.D., Volume 7, Appleton-Century-Crofts, Inc., New York, N.Y. Price $6.75.

Low Intensity Radium Therapy, Charles L. Martin, M.D., and James A. Martin, M.D., Little, Brown & Co., Boston, Mass. Price $12.50.

Arthritis, General Principles, Physical Medicine, Rehabilitation, edited by Edward W. Lowman, M.D., Little, Brown & Co., Boson, Mass. Price $9.50.

Henry Ford Hospital International Symposium, *Mechanisms of Hypersensitivity,* Editors Joseph H. Shaffer, M.D., Gerald A. LoGrippo, M.D., Merrill W. Chase, Ph.D., Little, Brown & Co., Boston, Mass. Price $18.50.

World Congress of Gastroenterology and Fifty-ninth Annual Meeting of the American Gastroenterological Association, 1958, Williams & Wilkins Company. Price (2 volumes) $20.00.

Radiation Hygiene Handbook, Hanson Blatz, Editor-in-Chief, McGraw-Hill Book Co., Inc., New York, N.Y. Price $27.50.

Handbook on Standard Nomenclature of Diseases and Operations, Edited by E. T. Thompson,, M.D., and A. C. Hayden, C.R.L. Prepared for American Medical Association, McGraw-Hill Book Co., Inc., New York, N.Y. Price $1.50.

New Drill Regulations, The Stackpole Company, Harrisburg, Pa. Price $2.50.

Principles of Disability Evaluation, Wilmer Cauthorn Smith, M.D., J. B. Lippincott Co., Philadelphia, Pa. Price $7.00.

BOOK REVIEWS

CHEMISTRY FOR MEDICAL TECHNOLOGISTS. By Charles E. Seiverd, Director of Research, The Horizon Laboratories, Glendale, Arizona. 465 pp, 63 figs., 1 color plate. C. V. Mosby, St. Louis. Price $10.75.

A student of medical technology is assumed to have an elementary knowledge of chemistry, physics and mathematics. Based on this premise further training requires practice and application in directed areas. In Part 1 of this book the author reviews basic theory of atomic structure and chemical equations, pH, and indicators, teaches students how to use the balance, and how to prepare solutions and titrate them; he then directs attention to the operation of colorimeters. There are review questions with answers.

Part 2 deals with the examination of urine, both the routine and more complicated tests.

Part 3 describes the proper method of collecting blood and explains the methods for its examination.

Part 4 deals with the spinal fluid, its collection and examination.

Part 5 takes up the gastric and duodenal fluid analysis. Appendices are concerned with the examination of feces and the preparation of reagents.

The book closes with 164 test questions, a brief bibliography and an 11-page index.

This book is a very suitable one for the training of laboratory technologists.

JAMES C. MUNCH

OUTLINE OF FRACTURES. 2nd Ed. By John Crawford Adams, M.D., F.R.C.S., London. 268 pp., illustrated. The Williams and Wilkins Company, Baltimore, exclusive U. S. Agents. Price $6.50.

The author has thoroughly revised the text; the section on the spine has been rewritten and illustrations have been added.

The book is written primarily for use of the undergraduate student and the general practitioner. With this aim in mind the author has very successfully organized his material on fractures under logical regional sections. In summary and outline form the field of fractures is fully covered. Each chapter is well organized. The principle of the healing of fractures is presented, types of fractures are classified, and methods and complications of diagnosis and treatment are succinctly discussed.

The text is written in a clear manner, is amply illustrated with excellent line drawings, photographs and charts.

This book should admirably serve the needs of the undergraduate student and general practitioner who needs a readily available, concisely presented orientation to fracture management in general or a clear description of one particular facet of this broad subject.

COL. JOSEPH W. BATCH, MC, USA

CLINICAL ORTHOPEDICS. No. 12. Rehabilitation. Editor-in-Chief, Anthony F. DePalma, M.D. 327 pages, illustrated. J. B. Lippincott Company, Philadelphia and Montreal. Price $7.50.

This is one of the most important publications in the English language. Incidentally, it has a summary of each article in interlingua which will facilitate its world appeal.

Volume 12 continues on with the high standards of the previous volumes. The first part deals with rehabilitation. There are many important comments and points on this phase of medicine. All of these articles should be of interest to doctors who do most any kind of practice. There are excellent discussions on disability ratings, recovery from poliomyelitis, management of rheumatoid arthritis, rehabilitation of the amputee (both children and adults), and of the hemiplegic, helpful hints on the restoration of the injured worker to gainful employment, and comments concerning aids in cerebral palsy treatment.

In addition, the early diagnosis and treatment of fat embolism is excellently brought out by Dr. Pipkin who presented this work at the El Paso meeting of the American Fracture Association of which *Clinical Orthopaedics* is an official publication.

Details of the use of the Frederick Thompson hip prosthesis are excellently illustrated. Injuries to the cervical spine, operative fixation of femoral neck and trochanteric fractures and supracondylar fractures of the femur are given. Lumbosacral fusion and comments concerning malignancies and scoliosis are also included.

Volume 12 is highly recommended to all orthopaedic surgeons and in fact, to all of the medical profession.

W. COMPERE BASOM, M.D.

PATHOPHYSIOLOGY IN SURGERY. By James D. Hardy, M.S. (Chem.), M.D., F.A.C.S. Professor and Chairman, Dept. of Surgery, and Director of Surgical Research, University of Mississippi Medical Center. 704 pages, illustrated. The Wil-

liams & Wilkins Company, Baltimore. Price $19.00.

Here is a textbook of pathophysiology for surgeons written by a surgeon who understands the practical application of this subject.

The manner in which Dr. Hardy presents this difficult subject allows the student to more clearly visualize and understand the clinical application of physiological concepts. His frequent reference to case studies is extremely helpful.

The book is divided into twenty-one chapters. The first ten chapters cover a variety of interrelated subjects, some of them including the physiology of injury; body fluid physiology; the physiology of thermal burns; the etiology, spread and control of cancer. These chapters serve as an introduction to the following eleven chapters each of which takes into consideration an organ system and emphasizes the physiological problems applicable to each system. The book is particularly well illustrated. The text would be an elegant addition to any medical library. It is particularly useful to the surgical intern and resident. It should prove to be of tremendous value to those preparing for their specialty board examinations.

LCdr. E. J. Rupnik, MC, USN

A Handbook of Medical Hypnosis. An Introduction for Practitioners and Students. 2nd Ed. By Gordon Ambrose and George Newbold. 276 pp. The Williams & Wilkins Co., Baltimore, exclusive U. S. agents. Price $6.75.

This is the second edition of a well presented and practical handbook of medical hypnosis. It is especially valuable to those who have had some previous experience in the induction and use of hypnosis.

The chapters on hypnosis in general medicine, neurosis and especially in pediatrics are very practical, well written and are excellently illustrated by actual clinical cases. Simple and practical procedures employing direct hypnotherapy, instead of the otherwise complicated psychoanalytical methods, makes this handbook indispensable to the majority of practicing physicians.

In dealing with gynecology and obstetrics, the authors capably point the advantages and limitations of hypnotherapy. The authors suggest that hypnosis could be used for minor surgery and in combination with chemoanesthesia. Throughout the handbook the authors stress the fact that hypnosis is not a panacea, but could be used as part of everyday medical practice.

This handbook should be owned by all physicians who are interested in medical hypnosis.

Col. D. D. Todorovic, USAF-R (MC)

The Care of the Geriatric Patient. Edited by E. V. Cowdry, Ph.D., Sc.D.(Hon.); 22 contributors. 438 pp. The C. V. Mosby Company, St. Louis. Price $8.00.

The Foreword of this book by Howard Rusk emphasizes the responsibility of medicine to those people who because of the medical discoveries since the turn of the century have had an extended life.

Because of this older age group which is becoming larger year by year there come special problems in medicine. Not one disease but many diseases comprise the study of geriatrics.

Twenty-two contributors, each an authority in his field, have written in these nineteen chapters. At the end of each chapter there are references for further reading.

The book is well printed, with an excellent binding, and is of pocket size. The readability is top-flight. It is a treasure-box in its field.

R. E. B.

Psychiatry in General Practice. J. A. Weijel, M.D., Amsterdam, The Netherlands. 206 pages. Elsevier Publishing Company, New York, Princeton, London, and Amsterdam. Price $7.00.

Better equipped to appraise psychosocial aspects of a general practitioner's case, the psychiatrist offers both clearer diagnosis and deeper therapy. "The psyche is not an organ." The practitioner can and should conduct "general psychotherapy," while preserving the social situation which he shares to different degrees with his patients. Class is important. "Psychiatric psychotherapy," the more so as this becomes psychoanalytic, requires a non-social situation.

On this thesis are developed Parts I and II—nearly half the book—in a wholly logical fashion, but one distinguished by such fine detail and philosophical reasoning that some American readers can be discouraged.

Part III thoroughly explains the author's Psychosocial Questionnaire. Without discounting its value, one must recall that forms of social history and of psychoneurotic inventory have been used for decades. Perhaps they have been taken as accessory; here, the psychosocial emphases are basic. They are very well brought out, and suggest fairly enough that this questionnaire's use in every non-trivial case would often (or always) yield findings of psychosomatic significance.

The G. P. could prefer less detail preceding Part III, more detail in Part IV on the "Medical Period." In its chapter on Neurosis, the classification is rather unfamiliar but the meanings are clear, and the over-all effect is convincing.

Case histories and bibliography are well selected. The chapters on psychotherapy are excellent. So is the summary. The two-page index is less helpful. Cybernetics, not mentioned as such, deserves to be.

Col. James H. Huddleson, USAR, Ret.

THE DIFFERENTIAL DIAGNOSIS OF ABDOMINAL PAIN. Edited by Sherman M. Mellinkoff, M.D. 443 pp. McGraw-Hill Book Company, Inc., New York. Price $9.00.

The authors have produced a masterpiece of logical presentation of the myriad causes of abdominal pain. The brief, yet well rounded, epitomes of the many diseases and conditions associated with abdominal pain make this book an excellent review. The text is divided into many parts, such as medical, surgical, systemic, and remote causes, making it a ready reference authority.

In my opinion, the most important chapter is the last where the importance of an excellent history is emphasized. This element is emphasized throughout the text with many fine case histories quoted to further support the description of the disease causing abdominal pain.

The book has another advantage in that it includes current thought and recent findings concerning abdominal pain. The market for this text includes all people concerned with the practice of medicine. Internists, surgeons, or neurologists will find it a friend indeed when they are confronted with the next vague case having pain in the abdomen.

AUGUSTUS A. HALL, M.D.

UROLOGY IN OUTLINE. By T. L. Chapman, Ch.M., F.R.C.S. (Eng.); F.R.F.P.S., (Glas.). 176 pp. illustrated. The Williams & Wilkins Co., Baltimore, exclusive U. S. agents. Price $6.75.

This book contains only 175 pages but appears to be an excellent text for the introduction of students and residents to the field of Urology. The book is replete with many illustrations which are in this reviewer's opinion excellent.

If a picture is worth ten thousand words, then this fairly small book is equivalent to a much lengthier tome. Each chapter is preceded by a brief but thorough discussion of the topic to be discussed in the illustrations. There are seventeen chapter headings which appear to cover the genito-urinary tract very thoroughly. The true value of this book consists in the excellent diagrams which follow the discussions. These pictures enable the students and new resident to visualize much better than could be done in words what the teacher is trying to show.

I believe this book would be of very great value as an auxiliary or ancillary book for one starting the study of Urology. It can be recommended without hesitation.

ALAN L. KLEIN, M.D., USPHS

PRACTITIONERS' CONFERENCES (Volume 7) held at New York-Cornell Medical Center. Edited by William J. Grace, M.D. 275 pp. Appleton-Century-Crofts, Inc., New York. Price $6.75.

This book contains the edited discussions of panels held on a number of medical subjects at the New York-Cornell Medical Center. The editor states, "In editing these conferences much of the original language and phraseology have been continued." The subjects covered in this volume are: Surgery for Mitral Stenosis, The Management of Patients with Multiple Sclerosis, Treatment of Leukemia, Management of Early and Latent Syphilis, Management of Acne, Low Back Pain—Herniated Discs, Problems of the New Born, Diseases of Adrenal Cortex, Rheumatic Arthritis, Carcinoma of Breast, Meningitis, Hepatitis and Hepatic Coma.

The index covers the subjects for volumes 1-7.

The remarks of the members of the panels give some of the latest thinking on the subjects covered.

G. E. B.

ESSENTIALS OF THERAPEUTIC NUTRITION. By Solomon Garb, M.D., Associate Professor of Pharmacology, Albany Medical College. 147 pages. Springer Publishing Co., Inc., New York. Price $2.00.

This book is written mainly for nurses. The information set forth is simple and concise. Some of the diets—Soft, Bland, and Low Residue are not compatible with current trends of using whole meats and vegetables instead of purees.

As a quick reference book it will be found to be useful.

MAJOR JOSEPHINE C. LYDON, AMSC

SYSTEM OF OPHTHALMOLOGY. Vol. I. The Eye in Evolution. By Sir Stewart Duke-Elder, M.D., D.Sc., F.R.C.S., F.R.A.C.S. 843 pages, illustrated. The C. V. Mosby Company, St. Louis. Price $27.50.

The first of 15 volumes in a proposed series is a masterful and erudite story of the evolution of vision beginning with the primitive motor taxis of the protozoon as an automatic response to that wondrous visual faculty capable of appreciating poignant beauty. The skein of this thesis although at times tenuous and teleological is facinatingly told in almost poetic expression, e.g.

"Thus when facing an enemy the venomous Australian spider, Latrodectus, turns a fiery red, and the cornered green chameleon an inky black, opening widely at the same time its brightly colored mouth. Nowhere, however, in the whole animal kingdom are displays so lavish and theatrical provided as among teleostean fishes in their wild ecstasies of love or fighting; none so exquisite as the elaborately graceful love-dance of the male European stickleback, Gasterosteus aculeatus, when his incandescent blue-green back and transparent red sides glow like neon lighting; none so awe-

some as the life-and death war dance of the ordinarily brownish-grey male Siamese fighting fish, Betta pugnax, as his widespread fins light up in a luminous multi-colored glory of burning passion which for centuries has whetted the gambling instincts of the Siamese as did cock-fights the English. In these cases the stimulus is purely visual for the stickleback will fight its own image in a mirror with the utmost savagery."

Such is the constant beautiful style of Duke-Elder's pen that charms the reader with its grace of words to pursue a trail through the phyla of dim antiquity origin to the reptiles, birds, and primates of the present era.

Each chapter is prefaced with the short biography of one who has significantly contributed and is linked with the better understanding of some aspect of the visual organ. As each chapter unfolds further information on the wonder-world of astounding animal phenomena is described. One learns that fishes wear spectacles, why animal eyes glow in the dark, that insects have color vision, that the bull does not identify the red of the matador's cape, how ants home to their nests, the explanation of the navigation sense of birds, and how the "dancing" bees communicate to other foraging bees. Each section is then concluded with a pertinent bibliography.

The index, glossary, color-photos, binding and paper are excellent. The book represents very much work and fine organization of material.

The philosopher, naturalist, and ophthalmologist will find great delight in this highly recommended reading.

CAPT. R. P. NADBATH, MC, USN

TOTAL SURGICAL MANAGEMENT. Modern Surgical Monographs. By James D. Hardy, M.S., M.D., F.A.C.S., 292 pp., illustrated. Grune & Stratton, New York and London. Price $9.50.

This monograph considers surgical management from original patient interview to discharge for follow-up care. An attempt is made to consider all aspects of surgery, basic and clinical with short discussions at resident or intern level of the usual problems of fluid therapy, shock, wound management, burns, the acute abdomen, anesthesia, the recovery room, postoperative problems, check list for evening rounds, et cetera. The book is directed toward residents and interns with brief coverage of many subjects.

COL. WARNER F. BOWERS, MC, USA

LONG-TERM ILLNESS. Edited by Michael G. Wohl, M.D., with the collaboration of 79 contributing authorities. 748 pages, illustrated. W. B. Saunders Company, Philadelphia and London. Price $17.00.

Recent medical advances have made possible both the increased life expectancy of the general population and of the chronically ill. There has thus arisen an urgent need for a source of information on the many and varied problems associated with the care and rehabilitation of both geriatric patients and the chronically afflicted. Seventy-nine authorities have collaborated with Dr. Wohl in providing a timely and comprehensive discussion of the medical problems inherent with long-term illness.

This book provides a remarkably complete survey of the present knowledge about the management of chronic illness. The style of presentation is lucid. Theoretical discussion is held to a minimum; but enough is presented to provide a rationale for treatment. Additional sources of information are suggested.

This book is recommended primarily to general practitioners who are presently in the foreground as the physicians most often responsible for the treatment of the chronically afflicted. Internists, medical students, and all others concerned with the care of the chronically ill will benefit from a reading of this book.

HARRY WEINRAUICH, M.D.

VASCULAR SURGERY. By Geza de Takats, M.D., M.S., F.A.C.S. 726 pages, 382 figures. W. B. Saunders Company, Philadelphia and London. Price $17.50.

The author states in the preface, "It is the purpose of this volume to describe the experience of our group." This he has done very well with frequent references to personal research and clinical observations as well as adding valuable lists of references.

The book is divided into four parts. The first part is devoted primarily to the discussion of physiology of the vascular system while the shorter second part reviews methods of diagnosis.

The major portion of the book is devoted to the vascular syndromes requiring surgery. The field is well covered including congenital vascular lesions, traumatic and inflammatory vascular lesions, degenerative disease and thrombo-embolism as well as many other related conditions.

The author more than once stresses his belief in the usefulness of lumbar sympathectomies both prophylactically in degenerative lesions and in addition to the insertion of grafts.

The chapter on thrombo-embolism contains a detailed discussion of the causes, prevention and treatment of such lesions of the arterial system, superficial and deep venous systems as well as pulmonary embolism.

The degree to which the subject of lymphedema is discussed is encouraging since this subject frequently is neglected in most publications.

Quite some detail is spent in the discussion of essential hypertension, after which an appendix is

added outlining work-up of the hypertensive patient.

The fourth part of the book is given over to surgical technique, including surgical procedures and numerous drawings of surgical approaches to major vessels, and even amputations are included.

This is one of the early books on the subject of Vascular Surgery. It is well arranged, well written and easily read. The author stated that in these times of rapid technical advance, many technical procedures rapidly become outdated but his purpose was to state fundamental principles which remain as a foundation of basic facts. This book contains those fundamental principles.

LT. COL. CARL W. HUGHES, MC, USA

THE EFFECT OF PHARMACOLOGIC AGENTS ON THE NERVOUS SYSTEM. Proceedings of the Association for Research in Nervous and Mental Disease. Vol. XXXVII. 488 pp., illustrated. The Williams & Wilkins Company, Baltimore. Price $13.50.

THE EFFECT OF PHARMACOLOGIC AGENTS ON THE Nervous System" is a compendium of the 1957 Proceedings of the Association for Research in Nervous and Mental Disease. As its name suggests, this book consists of twenty-six chapters, most of which are concerned with the different types of pharmacologic agents which have a definite effect on the nervous system. Each chapter is written by one investigator, or by two or three coinvestigators, who have specialized in one particular phase of the work. In a majority of the chapters, each investigator, or group of coinvestigators, reports in a comprehensive and lucid manner on the effect of a specific group of drugs on the nervous system. They discuss their own findings obtained through clinical investigations and research work and also furnish a review of the results obtained by other workers in the field who have carried on investigations similar in nature.

Each author or group of coauthors has furnished an excellent list of references covering the field about which the chapter was written. Throughout the book, the rapid advances in each field are discussed in a well organized manner so as to bring out the many new ways in which drugs may be used to advantage to modify the activities of the nervous system. Two chapters are concerned with methods of evaluation of certain types of drug effects upon the behavior in animals and in man. In the first two chapters of this book, the aims of pharmacotherapy, as applied to psychiatry and to neurology, are outlined and concisely discussed. Hence, the book as a whole presents a comprehensive review of the present knowledge of the effects of certain pharmacologic agents on the nervous system.

One chapter in the book is devoted to metabolic defects of the central nervous system and another chapter covers investigations in the effects obtained through the use of placebos. It is pointed out in the latter chapter that a placebo derives its power from the fact that its administration is a meaningful situation to the patient and that the power of a meaningful situation to bring about striking bodily effects is often not appreciated. In Chapter 24, one investigator furnishes a well organized "resume" of the subjects discussed in the preceding twenty-three chapters. As a consequence, any review of this very informative book consists partially of a "resume" of the more extensive "Resume" provided in the book itself.

Oral presentations of the subjects covered in all but the last two chapters of the book were made before the 1957 Meeting of the Association. Therefore, the discussions which occurred at the end of the various papers are also furnished in this book. As the Editor mentions in the preface of this volume, "They (the discussions) certainly convey the general feeling that pharmacologic agents are here to stay, not only because of their clinical value, but also because of their potential value in illuminating the somatic substrate of human behavior."

DR. DAVID W. O'DAY

DANGEROUS MARINE ANIMALS. Bruce W. Halstead, M.D., Director, World Life Research Institute. 135 pp., illustrated. Cornell Maritime Press, Cambridge, Md. Price $4.00.

This is a handbook for "skindivers, swimmers, physicians, first-aid workers, shell collectors, biologists, explorers. . . ." It succeeds admirably in covering the whole animal kingdom, from poisonous jellyfish and stinging corals, through poisonous molluscs, stinging worms, sea-snakes, sharks and fish, to poisoning from eating polar bear's liver. After a brief and well-balanced historical review it deals with its subjects in three groups: marine animals that bite, marine animals that sting, and marine animals that are poisonous to eat. As might be expected from Dr. Halstead's own researches a good deal of the handbook is taken up with venomous fish and fish with poisonous flesh. For these alone the book is well worth possessing. Prevention in this subject is more important than treatment, and the most important part of prevention is the recognition of a potentially poisonous fish before it is cooked. Unfortunately fish vary, some being edible on some occasions and poisonous on others. Nevertheless, the copious illustrations provided will help greatly in the recognition of the potentially poisonous fish before they are cooked.

Symptomatology is described, and treatment procedures are given, although in the majority of cases specific treatment is lacking.

This manual is highly recommended for those interested in or likely to come in contact with the subject.

CAPT. R. V. SOUTHCOTT, RAAMC RESERVE